

SHB 1397 - H AMD

By Representative Nixon

1 On page 2, line 27, after "standards" insert "as set forth in
2 section 7 of this act and"

3 On page 2, line 28, after "Regulations" strike ",,"

4 On page 2, line 30, after "implement" insert "section 7 of this
5 act and"

6 On page 2, line 32, after "vehicles" strike all material
7 through "act)" on line 34

8 On page 6, after line 17, insert the following:

9 **NEW SECTION. Sec. 7.**

10 **Title 13, California Code of Regulations**

11 **1900. Definitions.**

12 (a) The definitions in this section supplement and are
13 governed by the definitions set forth in chapter 2 (commencing with
14 section 39010), part 1, division 26 of the Health and Safety Code.
15 The definitions set forth in the applicable model-year new vehicle
16 certification and assembly-line test procedures adopted in this
17 chapter are hereby incorporated by reference.

18 (b) In addition to the definitions incorporated under
19 subdivision (a), the following definitions shall govern the
20 provisions of this chapter.

21 *[Definitions applicable only to warranty or recall provisions*
22 *not in this compilation are not set forth]*

23 * * * *

1 (4) Gaseous fuels- means any liquefied petroleum gas,
2 liquefied natural gas, or compressed natural gas fuels for use in
3 motor vehicles.

4 (5) Heavy-duty engine- means an engine which is used to
5 propel a heavy-duty vehicle.

6 (6) Heavy-duty vehicle- means any motor vehicle having a
7 manufacturer's gross vehicle weight rating greater than 6,000
8 pounds, except passenger cars.

9 * * * *

10 (8) Light-duty truck- means any 2000 and subsequent model
11 motor vehicle certified to the standards in section 1961(a)(1)
12 rated at 8,500 pounds gross vehicle weight or less, and any other
13 motor vehicle rated at 6,000 pounds gross vehicle weight or less,
14 which is designed primarily for purposes of transportation of
15 property or is a derivative of such a vehicle, or is available
16 with special features enabling off-street or off-highway
17 operation and use.

18 (9) Medium-duty vehicle- means any pre-1995 model year
19 heavy-duty vehicle having a manufacturer's gross vehicle weight
20 rating of 8,500 pounds or less; any 1992 through 2006 model-year
21 heavy-duty low-emission, ultra-low-emission, super-ultra-low-
22 emission or zero-emission vehicle certified to the standards in
23 section 1960.1(h)(2) having a manufacturer's gross vehicle weight
24 rating of 14,000 pounds or less; any 1995 through 2003 model year
25 heavy-duty vehicle certified to the standards in section
26 1960.1(h)(1) having a manufacturer's gross vehicle weight rating
27 of 14,000 pounds or less; and any 2000 and subsequent model
28 heavy-duty low-emission, ultra-low-emission, super-ultra-low-
29 emission or zero-emission vehicle certified to the standards in
30 Section 1961(a)(1) or 1962 having a manufacturer's gross vehicle
31 weight rating between 8,501 and 14,000 pounds.

32 * * * *

1 (11) Passenger car- means any motor vehicle designed
2 primarily for transportation of persons and having a design
3 capacity of twelve persons or less.

4 * * * *

5 (14) Subgroup- means a set of vehicles within an engine
6 family distinguishable by characteristics contained in the
7 manufacturer's application for certification.

8 * * * *

9 (17) Reactivity adjustment factor- means a fraction
10 applied to the NMOG emissions from a vehicle powered by a fuel
11 other than conventional gasoline for the purpose of determining a
12 gasoline-equivalent NMOG level. The reactivity adjustment factor
13 is defined as the ozone-forming potential of clean fuel vehicle
14 exhaust divided by the ozone-forming potential of gasoline
15 vehicle exhaust.

16 (18) Small volume manufacturer- means, with respect to the
17 2001 and subsequent model-years, a manufacturer with California
18 sales less than 4,500 new passenger cars, light-duty trucks,
19 medium-duty vehicles, heavy-duty vehicles and heavy-duty engines
20 based on the average number of vehicles sold for the three
21 previous consecutive model years for which a manufacturer seeks
22 certification; however, for manufacturers certifying for the
23 first time in California model-year sales shall be based on
24 projected California sales. A manufacturer's California sales
25 shall consist of all vehicles or engines produced by the
26 manufacturer and delivered for sale in California, except that
27 vehicles or engines produced by the manufacturer and marketed in
28 California by another manufacturer under the other manufacturer's
29 nameplate shall be treated as California sales of the marketing
30 manufacturer. For purposes of compliance with the zero-emission
31 vehicle requirements, heavy-duty vehicles and engines shall not
32 be counted as part of a manufacturer's sales. For purposes of
33 applying the 2005 and subsequent model year zero-emission vehicle
34 requirements for small-volume manufacturers under section
35 1962(b), the annual sales from different firms shall be

1 aggregated in the case of (1) vehicles produced by two or more
2 firms, each one of which either has a greater than 50% equity
3 ownership in another or is more than 50% owned by another; or (2)
4 vehicles produced by any two or more firms if a third party has
5 equity ownership of greater than 50% in each firm.

6
7 (19) Intermediate volume manufacturer- means any pre-2001
8 model year manufacturer with California sales between 3,001 and
9 60,000 new light- and medium-duty vehicles per model year based
10 on the average number of vehicles sold by the manufacturer each
11 model year from 1989 to 1993; any 2001 through 2002 model year
12 manufacturer with California sales between 4,501 and 60,000 new
13 light- and medium-duty vehicles per model year based on the
14 average number of vehicles sold by the manufacturer each model
15 year from 1989 to 1993; and any 2003 and subsequent model year
16 manufacturer with California sales between 4,501 and 60,000 new
17 light- and medium-duty vehicles based on the average number of
18 vehicles sold for the three previous consecutive model years for
19 which a manufacturer seeks certification. For a manufacturer
20 certifying for the first time in California, model year sales
21 shall be based on projected California sales. A manufacturer's
22 California sales shall consist of all vehicles or engines
23 produced by the manufacturer and delivered for sale in
24 California, except that vehicles or engines produced by the
25 manufacturer and marketed in California by another manufacturer
26 under the other manufacturer's nameplate shall be treated as
27 California sales of the marketing manufacturer. For purposes of
28 applying the 2005 and subsequent model year zero-emission vehicle
29 requirements for intermediate-volume manufacturers under section
30 1962(b), the annual sales from different firms shall be
31 aggregated in the case of (1) vehicles produced by two or more
32 firms, each one of which either has a greater than 50% equity
33 ownership in another or is more than 50% owned by another; or (2)
34 vehicles produced by any two or more firms if a third party has
35 equity ownership of greater than 50% in each firm.

36 (20) Large volume manufacturer- means any 2000 and
37 subsequent model year manufacturer that is not a small volume

1 manufacturer, or an independent low volume manufacturer, or an
2 intermediate volume manufacturer.

3 (21) Independent low volume manufacturer- means a
4 manufacturer with California annual sales of less than 10,000 new
5 passenger cars, light-duty trucks and medium-duty vehicles
6 following aggregation of sales pursuant to this section
7 1900(b)(21). Annual sales shall be determined as the average
8 number or sales sold for the three previous consecutive model
9 years for which a manufacturer seeks certification; however, for
10 a manufacturer certifying for the first time in California,
11 annual sales shall be based on projected California sales for the
12 model year. A manufacturer's California sales shall consist of
13 all vehicles or engines produced by the manufacturer and
14 delivered for sale in California, except that vehicles or engines
15 produced by the manufacturer and marketed in California by
16 another manufacturer under the other manufacturer's nameplate
17 shall be treated as California sales of the marketing
18 manufacturer. The annual sales from different firms shall be
19 aggregated in the following situations:
20

21 (A) Vehicles produced by two or more firms, one of which is
22 10% or greater part owned by another;

23 (B) Vehicles produced by any two or more firms if a third
24 party has equity ownership of 10% or more in each of the
25 firms;

26 (C) Vehicles produced by two or more firms having a
27 common corporate officer(s) who is (are) responsible for the
28 overall direction of the companies;

29 (D) Vehicles imported or distributed by all firms where the
30 vehicles are manufactured by the same entity and the

1 importer or distributor is an authorized agent of the
2 entity.

3 Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, and
4 43104 Health and Safety Code. Reference: Sections 39002, 39003, 39010, 39500,
5 40000, 43000, 43013, 43100, 43101, 43101.5, 43102, 43104, 43106, and 43204,
6 Health and Safety Code.

1 **1956.8. Exhaust Emission Standards and Test Procedures - 1985**
2 **and Subsequent Model Heavy-Duty Engines and Vehicles.**

3 (a) *[Exhaust emission standards for heavy-duty diesel*
4 *engines and heavy-duty natural-gas-fueled, liquefied-petroleum-*
5 *gas-fueled and methanol-fueled engines derived from diesel-cycle*
6 *engines; not applicable to passenger cars, light-duty trucks and*
7 *medium-duty vehicles and accordingly not set forth.]*

8 (b) The test procedures for determining compliance with
9 standards applicable to 1985 and subsequent model heavy-duty
10 diesel engines and vehicles and the requirements for
11 participating in the averaging, banking and trading programs, are
12 set forth in the California Exhaust Emission Standards and Test
13 Procedures for 1985 through 2003 Model Heavy-Duty Diesel Engines
14 and Vehicles, adopted April 8, 1985, as last amended December
15 12, 2002, the California Exhaust Emission Standards and Test
16 Procedures for 2004 and Subsequent Model Heavy-Duty Diesel
17 Engines and Vehicles,- adopted December 12, 2002, and the
18 California Interim Certification Procedures for 2004 and
19 Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and
20 Heavy-Duty Vehicle Classes,- adopted October 24, 2002, which are
21 incorporated by reference herein.

22 (c)(1)(A) The exhaust emissions from (i) new 1987 through
23 2004 model heavy-duty Otto-cycle engines (except methanol-fueled
24 engines and except heavy-duty Otto-cycle natural-gas-fueled and
25 liquefied-petroleum-gas-fueled Otto-cycle engines derived from
26 diesel-cycle engines) and (ii) from new 1993 through 2004 model
27 heavy-duty methanol-fueled Otto-cycle engines (except in all
28 cases engines used in medium-duty vehicles) shall not exceed:

Exhaust Emission Standards for Heavy-Duty Otto-Cycle Engines
(grams per brake horsepower-hour or g/bhp-hr)

<i>Model Year</i>	<i>Total Hydrocarbons or OMHCE</i>	<i>Optional Non-Methane Hydrocarbons</i>	<i>Carbon Monoxide</i>	<i>Oxides of Nitrogen</i>
1987	1.1	--	14.4	10.6
1988-1989	1.9	--	37.1	10.6
	1.1	--	14.4	6.0
1990	1.9	--	37.1	6.0
	1.1	0.9	14.4	6.0
1991-1994	1.9	1.7	37.1	6.0
	1.1	0.9	14.4	5.0
1995-1997	1.9	1.7	37.1	5.0
	1.9	1.7	37.1	2.5 to 5.0
1998-2003	1.9	1.7	37.1	4.0
	1.9	1.7	37.1	1.5 to 0.5
	<i>Non-Methane Hydrocarbons plus Oxides of Nitrogen (NMHC + NOx)</i>		<i>Carbon Monoxide</i>	
2004	2.4 g/bhp-hr; or 2.5 with 0.5 g/bhp-hr cap on NMHC		37.1	

^A The total or optional non-methane hydrocarbon standards apply to petroleum-fueled, natural-gas-fueled and liquefied-petroleum-gas-fueled engines and methanol-fueled engines beginning in 2004. The Organic Material Hydrocarbon Equivalent, or OMHCE, standards apply to 1987 through 2003 methanol-fueled engines.

1 B Prior to the 2002 model year, carbon monoxide emissions from engines
2 utilizing exhaust after treatment technology shall also not exceed 0.5 percent
3 of the exhaust gas flow at curb idle.

4 C Manufacturers with existing heavy-duty Otto-cycle engines certified to
5 the California 1986 steady-state emission standards and test procedures may as
6 an option certify those engines, for the 1987 model year only, in accordance
7 with the standards and test procedures for 1986 heavy-duty Otto-cycle engines
8 established in Section 1956.7.

9 D These standards are applicable to Otto-cycle engines intended for use in
10 all heavy-duty vehicles.

11 E Applicable to heavy-duty Otto-cycle engines intended for use only in
12 vehicles with a gross vehicle weight rating greater than 14,000 pounds. Also,
13 as an option, a manufacturer may certify one or more 1988 through 1994 model
14 Otto-cycle heavy-duty engine configurations intended for use in all heavy-duty
15 vehicles to these emission standards, provided that the total model-year sales
16 of such configuration(s) being certified to these emission standards represent
17 no more than 5 percent of total model-year sales of all Otto-cycle heavy-duty
18 engines intended for use in vehicles with a Gross Vehicle Weight Rating of up
19 to 14,000 pounds by the manufacturer.

20 F These are optional standards and apply to all heavy-duty engines
21 intended for use only in vehicles with a gross vehicle weight rating greater
22 than 14,000 pounds. A manufacturer may elect to certify to an optional
23 standard between the values, inclusive, by 0.5 grams per brake horsepower-hour
24 increments.

25 G A manufacturer may request to certify to Option 1 or Option 2 federal
26 NMHC + NOx standards as set forth in 40 CFR ú 86.005-10(f), as adopted October
27 6, 2000.

28 (B) The exhaust emissions from new 2005 and subsequent
29 model heavy-duty Otto-cycle engines, except for Otto-cycle
30 medium- and heavy-duty engines subject to the alternative
31 standards in 40 CFR ú86.005-10(f), shall not exceed:

32 **California Emission Standards for 2005 and Subsequent Model**
33 **Heavy-Duty Otto-Cycle Engines**
34 (in g/bhp-hr)

Model Year	Emission Category	NMHC + NOx	NMHC	NOx	CO	HCHO	PM
Standards for Heavy-Duty Otto-Cycle Engines Used In Incomplete Medium-Duty Vehicles 8,501 to 14,000 pounds GVW							
2005 through 2007	ULEV	1.0	n/a	n/a	14.4	0.05	n/a
	SULEV	0.5	n/a	n/a	7.2	0.025	n/a
2008 and subsequent	ULEV	n/a	0.14	0.20	14.4	0.01	0.01
	SULEV	n/a	0.07	0.10	7.2	0.005	0.005
Standards for Heavy-Duty Otto-Cycle Engines Used In Heavy-Duty Vehicles Over 14,000 pounds GVW							
2005 through 2007	n/a	1.0	n/a	n/a	37.1	0.05	n/a
2008 and subsequent	n/a	n/a	0.14	0.20	14.4	0.01	0.01

A These standards apply to petroleum-fueled, alcohol-fueled, liquefied petroleum gas-fueled and natural gas-fueled Otto-cycle engines.

B. A manufacturer of engines used in incomplete medium-duty vehicles may choose to comply with these standards as an alternative to the primary emission standards and test procedures for complete vehicles specified in section 1961, title 13, CCR. A manufacturer that chooses to comply with these optional heavy-duty engine standards and test procedures shall specify, in the Part I application for certification, an in-use compliance test procedure, as provided in section 2139(c), title 13 CCR.

C A manufacturer may request to certify to the Option 1 or Option 2 federal NMHC + NOx standards as set forth in 40 CFR 86.005-10(f). However, for engines used in medium-duty vehicles, the formaldehyde level must meet the standard specified above.

D This standard only applies to methanol-fueled Otto-cycle engines.

E A manufacturer may elect to include any or all of its medium- and heavy-duty Otto-cycle engine families in any or all of the emissions ABT programs for HDEs, within the restrictions

1 described in section I.15 of the California Exhaust Emission
2 Standards and Test Procedures for 2004 and Subsequent Model
3 Heavy-Duty Otto-Cycle Engines,- incorporated by reference in
4 section 1956.8(d). For engine families certified to the Option 1
5 or 2 federal standards, the FEL must not exceed 1.5 g/bhp-hr. If
6 a manufacturer elects to include engine families certified to the
7 2005 and subsequent model year standards, the NOx plus NMHC FEL
8 must not exceed 1.0 g/bhp-hr. For engine families certified to
9 the 2008 and subsequent model year standards, the FEL is the same
10 as set forth in 40 CFR 86.008-10(a)(1).

11 ^F Idle carbon monoxide: For all Otto-cycle heavy-duty engines
12 utilizing aftertreatment technology, and not certified to the on-
13 board diagnostics requirements of section 1968, et seq, as
14 applicable, the CO emissions shall not exceed 0.50 percent of
15 exhaust gas flow at curb idle.
16

17 (c)(2) Formaldehyde exhaust emissions from new 1993 and
18 subsequent model methanol-fueled Otto-cycle engines shall not
19 exceed:

20	<i>Model Year</i>	<i>Formaldehyde</i>
21		<i>(g/bhp-hr)</i>
22	1992-1995	0.10
23	1996 and Subsequent	0.05

24 (d) The test procedures for determining compliance with
25 standards applicable to 1987 and subsequent model heavy-duty
26 Otto-cycle engines and vehicles are set forth in the California
27 Exhaust Emission Standards and Test Procedures for 1987 through
28 2003 Model Heavy-Duty Otto-Cycle Engines and Vehicles,- adopted
29 April 25, 1986, as last amended December 27, 2000, the
30 California Exhaust Emission Standards and Test Procedures for
31 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines,- adopted

1 December 27, 2000, as last amended December 12, 2002, the
2 California Non-Methane Organic Gas Test Procedures,- adopted
3 July 12, 1991, as last amended July 30, 2002, and the California
4 Interim Certification Procedures for 2004 and Subsequent Model
5 Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle
6 Classes,- adopted October 24, 2002, which are incorporated by
7 reference herein.

8 (e) A manufacturer may elect to certify complete heavy-duty
9 vehicles of 14,000 pounds or less maximum gross vehicle weight
10 rating as medium-duty vehicles under section 1960.1 or section
11 1961 of this chapter, in which event the heavy-duty emission
12 standards and test procedures in this section shall not apply.

13 (f) *[Use of engines certified to meet federal emission*
14 *standards, or which are demonstrated to meet appropriate federal*
15 *emission standards, in up to a total of 100 heavy-duty vehicles*
16 *in a calendar year when the executive officer has determined that*
17 *no engine certified to meet California emission standards exists*
18 *which is suitable for use in the vehicles; not applicable to*
19 *passenger cars, light-duty trucks and medium-duty vehicles and*
20 *accordingly not set forth.]*

21 (g) The exhaust emissions from new 1995 through 2003
22 model-year engines used in incomplete medium-duty vehicles or
23 diesel engines used in medium-duty vehicles shall not exceed:
24 _____
25 _____

26 **Exhaust Emission Standards**

27 (grams per brake horsepower-hour, or g/bhp-hr)

28

Model Year	Carbon Monoxide	NMHC + NOx	Particulate §
1995 through 2003	14.4	3.9	0.10

29

1 ^A This set of standards is optional. Manufacturers of engines used in
2 incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles
3 from 8501-14,000 pounds, gross vehicle weight may choose to comply with these
4 standards as a alternative to the primary emission standards and test
5 procedures specified in section 1960.1, Title 13, California Code of
6 Regulations. Manufacturers that choose to comply with these optional
7 heavy-duty standards and test procedures shall specify, in the application for
8 certification, an in-use compliance test procedure, as provided in section
9 2139(c), Title 13, California Code of Regulations.

10 ^B This standard is the sum of the individual non-methane hydrocarbon
11 emissions and oxides of nitrogen emissions. For methanol-fueled engines,
12 non-methane hydrocarbons shall mean organic material hydrocarbon equivalent.

13 ^C This standard shall only apply to diesel engines and vehicles.

14 ^D In the 1995 model-year only, manufacturers may certify up to 50 percent of
15 their medium-duty engines or vehicles to the applicable 1994 model-year
16 standards and test procedures. For the 1995 through 1997 models, alternative
17 in-use compliance is available for medium-duty manufacturers. A manufacturer
18 may use alternative in-use compliance for up to 100 percent of its fleet in
19 the 1995 and 1996 model years and up to 50 percent of its fleet in the 1997
20 model year. The percentages shall be determined from the manufacturers
21 projected California sales of medium-duty vehicles. For engines certified to
22 the standards and test procedures of this subsection, alternative in-use
23 compliance shall consist of an allowance of 25 percent over the HC + NOx
24 standard. In-use compliance testing shall be limited to vehicles or engines
25 with less than 90,000 miles.

26 _____
27 _____

28 (h) The exhaust emissions from new:

29 (1) 1992 through 2004 model-year Otto-cycle engines used in
30 incomplete medium-duty low-emission vehicles, ultra-low-emission
31 vehicles, and super-ultra-low-emission vehicles, and

32 (2) 1992 and subsequent model diesel engines used in medium-
33 duty low-emission vehicles, ultra-low-emission vehicles and
34 super-ultra-low-emission vehicles shall not exceed:

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**Exhaust Emission Standards for Engines Used in Incomplete
Otto-Cycle Medium-Duty Low-Emission Vehicles, Ultra-Low-Emission
Vehicles, and Super Ultra-Low-Emission Vehicles, and for Diesel
Engines Used in
Medium-Duty Low-Emission Vehicles, Ultra-Low-Emission Vehicles,
and
Super Ultra-Low-Emission Vehicles^{AE}
(grams per brake horsepower-hour)**

Model Year	Vehicle Emission Category ^B	Carbon Monoxide	NMHC + NOx ^C	Non-Methane Hydrocarbon s	Oxides of Nitrogen	Formaldehyd e	Particulat es
1992 - 2001	LEV	14.4	3.5 ^K	n/a	n/a	0.050	0.10 ^K
2002-2003	LEV	14.4	3.0 ^K	n/a	n/a	0.050	0.10 ^K
1992-2003	ULEV	14.4	2.5 ^K	n/a	n/a	0.050	0.10 ^K
2004 and subsequent ^L	ULEV - Opt A	14.4	2.5 ^{I,J,K}	n/a	n/a	0.050	0.10 ^{J,K}
2004 and subsequent ^L	ULEV - Opt. B	14.4	2.4 ^{I,J,K}	n/a	n/a	0.050	0.10 ^{J,K}
2007 and subsequent ^P	ULEV	15.5	n/a	0.14	0.2	0.050	0.01
1992 and subsequent ^L	SULEV	7.2	2.0 ^K	n/a	n/a	0.025	0.05 ^K
2007 and subsequent ^P	SULEV	7.7	n/a	0.07	0.1	0.025	0.005

29 ^A This set of standards is optional. Manufacturers of engines used in
30 incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles
31 from 8501-14,000 pounds gross vehicle weight rating may choose to comply with
32 these standards as an alternative to the primary emission standards and test
33 procedures specified in section 1960.1, or section 1961, Title 13, California

1 Code of Regulations. Manufacturers that choose to comply with these optional
2 heavy-duty standards and test procedures shall specify, in the application for
3 certification, an in-use compliance test procedure, as provided in section
4 2139(c), Title 13, California Code of Regulations.

5 ^B "LEV" means low-emission vehicle.

6 "ULEV" means ultra-low-emission vehicle.

7 "SULEV" means super ultra-low-emission vehicle.

8 ^C This standard is the sum of the individual non-methane hydrocarbon
9 emissions and oxides of nitrogen emissions. For methanol-fueled engines, non-
10 methane hydrocarbons shall mean organic material hydrocarbon equivalent
11 ("OMHCE").

12 ^D These standards apply only to diesel engines and vehicles.

13 ^E Manufacturers may certify engines used in incomplete medium-duty vehicles
14 or diesel engines used in medium-duty vehicles to these standards to meet the
15 requirements of section 1956.8(g), Title 13, California Code of Regulations.

16 ^F In-use compliance testing shall be limited to vehicles or engines with fewer
17 than 90,000 miles.

18 ^G [Reserved]

19 ^H For engines certified to the 3.5 grams per brake horsepower-hour (g/bhp-hr)
20 LEV standards, the in-use compliance standard shall be 3.7 g/bhp-hr for the
21 first two model years of introduction. For engines certified to the 2002 and
22 2003 model year LEV standards, the in-use compliance standard shall be 3.2
23 g/bhp-hr. For engines certified to the 1992 through 2003 model year ULEV
24 standards, the in-use compliance standard shall be 2.7 g/bhp-hr for the first
25 two model years of introduction. For engines certified to the 1992 and
26 subsequent SULEV standards, the in-use compliance standard shall be 2.2 g/bhp-
27 hr for the first two model years of introduction.

28 ^I Manufacturers have the option of certifying to either option A or B.
29 Manufacturers electing to certify to Option A must demonstrate that the NMHC
30 emissions do not exceed 0.5 g/bhp-hr.

31 ^J Emissions averaging may be used to meet these standards for diesel engines,
32 using the requirements for participation in averaging, banking and trading
33 programs, as set forth in the California Exhaust Emission Standards and Test
34 Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and
35 Vehicles, incorporated by reference in section 1956.8 (b), above.

36 ^K Engines of 1998 and subsequent model years may be eligible to generate
37 averaging, banking and trading credits based on these standards according to
38 the requirements of the averaging, banking and trading programs described in
39 the California Exhaust Emission Standards and Test Procedures for 1985
40 through 2003 Model Heavy-Duty Engines and Vehicles and the California
41 Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model
42 Heavy-Duty Diesel Engines and Vehicles, incorporated by reference in section
43 1956.8(b), above.

44 ^L For 2007 and subsequent model year diesel engines used in medium-duty
45 vehicles, these emission standards are not applicable.

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(3) 2007 and later model year engines subject to (h)(2) have the following Phase-in Options.

(A) Early NOx compliant engines. For model years 2007, 2008, and 2009, a manufacturer may, at their option, certify one or more of their engine families to the combined NOx plus NMHC standard or FEL applicable to model year 2006 engines under section 1956.8 (h)(2), in lieu of the separate NOx and NMHC standards or FELs applicable to the 2007 and subsequent model years, specified in section 1956.8 (h)(2). Each engine certified under this phase-in option must comply with all other emission requirements applicable to model year 2007 engines. To qualify for this option, a manufacturer must satisfy the U.S.-directed production requirement of certifying no more than 50 percent of engines to the NOx plus NMHC standards or FELs applicable to 2006 engines, as specified in 40 Code of Federal Regulations, part 86, section 86.007-11 (g)(1), as adopted January 18, 2001. In addition, a manufacturer may reduce the quantity of engines that are required to be phased-in using the early certification credit program specified in 40 Code of Federal Regulations, part 86, section 86.007-11 (g)(2), as adopted January 18, 2001, and the Blue Sky-engine program specified in 40 Code of Federal Regulations, part 86, section 86.007-11 (g)(4), as adopted January 18, 2001.

(B) Early PM compliant engines. A manufacturer certifying engines to the 2007 and subsequent model year PM standard listed in section 1956.8 (h)(2) (without using credits, as determined in any averaging, banking, or trading program described in California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles,- to comply with the standards) before model year 2007 may reduce the number of engines that are required to meet the 2007 and subsequent model year PM standard listed in section 1956.8 (h)(2) in model year 2007, 2008 and/or 2009. To qualify for this option, a manufacturer must satisfy the PM emission

1 requirements pursuant to the methods detailed in 40 Code of
2 Federal Regulations, part 86, section 86.007-11 (g)(2)(ii), as
3 adopted January 18, 2001.

4 (4) No crankcase emissions shall be discharged directly into
5 the ambient atmosphere from any new 2007 or later model year
6 diesel heavy-duty diesel engine, with the following exception:
7 heavy-duty diesel engines equipped with turbochargers, pumps,
8 blowers, or superchargers for air induction may discharge
9 crankcase emissions to the ambient atmosphere if the emissions
10 are added to the exhaust emissions (either physically or
11 mathematically) during all emission testing. Manufacturers
12 taking advantage of this exception must manufacture the engines
13 so that all crankcase emission can be routed into a dilution
14 tunnel (or other sampling system approved in advance by the
15 Executive Officer), and must account for deterioration in
16 crankcase emissions when determining exhaust deterioration
17 factors. For the purpose of section 1956.8 (h)(2), crankcase
18 emissions that are routed to the exhaust upstream of exhaust
19 aftertreatment during all operation are not considered to be
20 discharged directly into the ambient atmosphere.''

21 NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104,
22 43105 and 43806, Health and Safety Code; and Section 28114, Vehicle Code.
23 Reference: Sections 39002, 39003, 39500, 43000, 43013, 43018, 43100, 43101,
24 43101.5, 43102, 43104, 43106, 43202, 43204, 43206, 43210, 43211, 43212, 43213,
25 and 43806, Health and Safety Code; and Section 28114, Vehicle Code.

1 **1960.1. Exhaust Emission Standards and Test Procedures - 1981**
 2 **through 2006 Model Passenger Cars, Light-Duty Trucks, and Medium-**
 3 **Duty Vehicles.**

4 (a) *[Exhaust emission standards for 1981 model passenger cars,*
 5 *light-duty trucks and medium-duty vehicles; not set forth]*

6 (b) *[Exhaust emission standards for 1982 model passenger cars,*
 7 *light-duty trucks and medium-duty vehicles; not set forth]*

8 (c) *[Exhaust emission standards for 1983 model passenger cars,*
 9 *light-duty trucks and medium-duty vehicles; not set forth]*

10 (d) *[Exhaust emission standards for 1984 through 1990 model*
 11 *passenger cars, light-duty trucks and medium-duty vehicles; not set*
 12 *forth]*

13 (e)(1) *[Exhaust emission standards for 1989 through 1994 model*
 14 *passenger cars, light-duty trucks and medium-duty vehicles; not set*
 15 *forth]*

16 (e)(2) The exhaust emissions from new 1993 through 2003 model
 17 methanol-fueled vehicles, including fuel-flexible vehicles, shall
 18 meet all the applicable requirements in (e)(1), (f)(1) and (f)(2)
 19 with the following modifications and additions:
 20 _____
 21 _____

22 **1993 THROUGH 2003 METHANOL-SPECIFIC**
 23 **EXHAUST EMISSION STANDARDS**

Vehicle Type	Loaded Vehicle Weight ³ (lbs.)	Durability Vehicle Basis (mi)	Formaldehyde (mg/mi)	
			Certification	In-Use Compliance

1	PC	5	All	50,000	15	23
2	0,000	15				(1993-1995)
3	23					15 (1996-
4	(1993-1995)					2003)
						15 (1996-
5	LDT, MDV		0 - 3750	50,000	15	23
						(1993-1995)
						33
						(1993-1995)
						15 (1996-
						2003)
6	LDT, MDV		3751 5750	50,000	18	27
7	22 (1996-					(1993-1995)
8	2003)					18 (1996-
						2003)
9	MDV		5751 8500	50,000	22	33
						(1993-1995)
						22 (1996-
						2003)
10	MDV		8501 10,000	50,000	28	36 (1995)
						28 (1996-
						2003)
11	MDV		10,001 14,000	50,000	36	45 (1995)
						36 (1996-
						2003)

12 ¹ PC means passenger cars.

13 LDT means light-duty trucks.

14 MDV means medium-duty vehicles.

15 ² If the formaldehyde in-use compliance level is above the respective
16 certification level but does not exceed the in-use compliance level, and based
17 on a review of information derived from a statistically valid and
18 representative sample of vehicles, the Executive Officer determines that a
19 substantial percentage of any class or category of such vehicle exhibits,
20 prior to 50,000 miles or 5 years, whichever occurs first, an identifiable,
21 systematic defect in a component listed in Section 1960.1.5(c)(2), Title 13
22 California Code of Regulations, which causes a significant increase in
23 emissions above those exhibited by vehicles free of such defects and of the
24 same class or category and having the same period of use and mileage, the
25 Executive Officer may invoke the enforcement authority under subchapter 2.5,
26 Title 13, California Code of Regulations, commencing with Section 2111, to
27 require remedial action by the vehicle manufacturer. Such remedial action
28 shall be limited to owner notification and repair or replacement of the
29 defective component. As used in this section, the term defect shall not
30 include failures which are the result of abuse, neglect, or improper
31 maintenance.

3 For 1995-2003 model year medium-duty vehicles certifying to the standards
 2 and test procedures specified in Section 1960.1(h)(1), Title 13, California
 3 Code of Regulations, Loaded Vehicle Weight shall mean Test Weight, which
 4 is the average of the vehicle's curb weight and gross vehicle weight.
 5

6 (e)(3) The exhaust emissions from new 1992 through 2006 model-year
 7 LEV I transitional low-emission vehicles, low-emission vehicles, ultra-low-
 8 emission vehicles, and super-ultra-low-emission vehicles, including fuel-
 9 flexible and dual-fuel vehicles, shall meet all the requirements in (g)(1),
 10 and (h)(2) with the following additions:
 11

12 **FORMALDEHYDE EXHAUST EMISSION STANDARDS**
 13 **IN THE LIGHT-DUTY AND MEDIUM-DUTY VEHICLE WEIGHT CLASSES**⁵⁶⁷
 14 [milligrams per mile (or mg/mi)]

15	Vehicle	Durability	Vehicle		Formaldehyde
16	Weight	Vehicle Basis	Emission		Category
17	¹ (lbs.)	(mi)			
18	⁴ (mg/mi)				
19	PC and	All	50,000	TLEV	15
20	(23)				
21	LDT	0-3750		LEV	15 (15)
22				ULEV	8 (12)
23		100,000		TLEV	18
24				LEV	18
25				ULEV	11
26	LDT	3751-5750	50,000	TLEV	18 (27)
27				LEV	18 (18)
28				ULEV	9 (14)
29		100,000		TLEV	23
30				LEV	23
31				ULEV	13
32	MDV	0-3750	50,000	LEV	15
33	(15)				
34				ULEV	8 (12)
35		120,000		LEV	22
36				ULEV	12
37	MDV	3751-5750	50,000	LEV	18 (18)
38				ULEV	9 (14)
39				SULEV	4 (7)

1			120,000	LEV	27
2				ULEV	13
3				SULEV	6
4	MDV	5751-8500	50,000	LEV	22 (22)
5				ULEV	11 (17)
6				SULEV	6 (8)
7			120,000	LEV	32
8				ULEV	16
9				SULEV	8
10	MDV	8501-10,000	50,000	LEV	28 (28)
11				ULEV	14 (21)
12				SULEV	7 (10)
13			120,000	LEV	40
14				ULEV	21
15				SULEV	10
16	MDV	10,001-14,000	50,000	LEV	36
17	(36)				
18				ULEV	18 (27)
19				SULEV	9 (14)
20			120,000	LEV	52
21				ULEV	26
22				SULEV	13

23 ¹ PC means passenger cars.

24 LDT means light-duty trucks.

25 MDV means medium-duty vehicles.

26 ² For light-duty or medium-duty vehicles, Vehicle Weight shall mean Loaded
27 Vehicle Weight (or LVW) or Test Weight (or TW), respectively.

28 ³ TLEV means transitional low-emission vehicle.

29 LEV means low-emission vehicle.

30 ULEV means ultra-low-emission vehicle.

31 SULEV means super-ultra-low-emission vehicle.

32 ⁴ Formaldehyde exhaust emission standards apply to vehicles certified to
33 operate on any available fuel, including fuel-flexible and dual-fuel vehicles.

34 ⁵ The standards in parentheses are intermediate in-use compliance standards
35 for 50,000 miles.

1 a. For PCs and LDTs from 0-5750 lbs. LVW, including fuel-flexible and
2 dual-fuel vehicles, intermediate in-use compliance standards shall apply
3 to TLEVs through the 1995 model year, and LEVs and ULEVs through the
4 1998 model year. In-use compliance with standards beyond 50,000 miles
5 shall be waived through the 1995 model year for TLEVs, and through the
6 1998 model year for LEVs and ULEVs.

7 b. For MDVs from 0-14,000 lbs. TW, including fuel-flexible and dual-fuel
8 vehicles, intermediate in-use compliance standards shall apply to LEVs,
9 ULEVs, and SULEVs through the 1999 model year. In-use compliance with
10 standards beyond 50,000 miles shall be waived through the 1999 model
11 year for LEVs, ULEVs, and SULEVs.

12 ⁶ Manufacturers shall demonstrate compliance with the above standards for
13 formaldehyde at 50 F, according to the procedure specified in section 11k of
14 the California Exhaust Emission Standards and Test Procedures for 1988
15 through 2000 Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles
16 as incorporated by reference in section 1960.1(k) or section E.1.4 of the
17 California Exhaust Emission Standards and Test Procedures for 2001 and
18 Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles
19 as incorporated by reference in section 1961(d). Hybrid electric, natural
20 gas, and diesel-fueled vehicles shall be exempt from 50 test requirements.

21 ⁷ In-use compliance testing shall be limited to PCs and LDTs with fewer than
22 75,000 miles and MDVs with fewer than 90,000 miles.
23
24

25 (f)(1) *[Exhaust emission standards for new 1993 and 1994*
26 *model passenger cars and light-duty trucks, except those produced*
27 *by a small volume manufacturer; not set forth]*

28 (f)(2) *Tier 1- Exhaust Emission Standards for PCs and*
29 *LDTs. The exhaust emissions from new 1995 through 2003 model Tier*
30 *1 passenger cars and light-duty trucks shall not exceed:*

31 **1995-2003 MODEL-YEAR TIER 1 PASSENGER CAR AND**
32 **LIGHT-DUTY TRUCK EXHAUST EMISSIONS STANDARDS**

33 (grams per mile)

1	Vehicle	Loaded	Durabilit	Non-Methane	Carbon	Oxides
2	Type	Vehicle	y Vehicle	Hydrocarbon	Monoxid	of
		Weight	Basis	²	¹	Nitrogen
		(lbs.)	(mi.)			³
3	PC	All	50,000	0.25	3.4	0.4
4	PC	All	100,000	0.31	4.2	0.6
5	Diesel PC	All	100,000	0.31	4.2	1.0
6	(Option					
7	2)					
8	LDT	0 - 3750	50,000	0.25	3.4	0.4
9	LDT	0 3750	100,000	0.31	4.2	0.6
10	Diesel LDT	0 - 3750	100,000	0.31	4.2	1.0
11	(Option					
12	2)					
13	LDT	3751 5750	50,000	0.32	4.4	0.7
14	LDT	3751 5750	100,000	0.40	5.5	0.97
15	Diesel LDT	3751 5750	100,000	0.40	5.5	1.5
16	(Option					
17	1)					

18 ¹ PC means passenger car. LDT means light-duty truck.

19 ² For methanol- or ethanol-fueled vehicles certifying to these standards,
20 including fuel-flexible vehicles when certifying on methanol or ethanol, Non-
21 Methane Hydrocarbons shall mean Organic Material Non-Methane Hydrocarbon
22 Equivalent (or OMNMHCE).

23 ³ The maximum projected emissions of oxides of nitrogen measured on the
24 federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B) shall be
25 not greater than 1.33 times the applicable passenger car standards and 2.00
26 times the applicable light-duty truck standards shown in the table. Both the
27 projected emissions and the HWFET standard shall be rounded in accordance with
28 ASTM E29-67 to the nearest 0.1 g/mi before being compared.

29 ⁴ Small volume manufacturers may choose to certify to an optional 0.7 g/mi
30 NOx standard for the 1995 model year only, pursuant to the conditions set
31 forth in sections 1960.1 (f)(1) and 1960.1.5.

32 ⁵ Diesel passenger cars and light-duty trucks certifying to these standards
33 are subject to a particulate exhaust emission standard of 0.08 g/mi,
34 determined on a 50,000 mile durability vehicle basis.

35 ⁶ For all vehicles, except those certifying to optional diesel standards, in-
36 use compliance with the exhaust emission standards shall be limited to
37 vehicles with less than 75,000 miles.

38 ⁷ For the 1995 and 1996 model years, all manufacturers, except those
39 certifying to optional diesel standards, are permitted alternative in-use
40 compliance. Alternative in-use compliance is permitted for 60% of a
41 manufacturer s vehicles in the 1995 model year and 20% of a manufacturer s

1 vehicles in the 1996 model year. For the 1995 and 1996 model years, small
2 volume manufacturers only are permitted alternative in-use compliance for 100%
3 of the fleet. The percentages shall be applied to the manufacturer s total
4 projected sales of California-certified passenger cars and light-duty trucks
5 for the model year. Alternative in-use compliance shall consist of the
6 following:

7 a For all passenger cars and those light-duty trucks from 0-
8 3750 lbs. loaded vehicle weight, except those diesel vehicles certifying
9 to optional 100,000 mile standards, in-use compliance standards shall be
10 0.32 g/mi non-methane hydrocarbon and 5.2 g/mi carbon monoxide for
11 50,000 miles.

12 b.
13 For light-duty trucks from 3751-5750 lbs. loaded vehicle weight, except
14 those diesel light-duty trucks certifying to optional 100,000 mile
15 standards, in-use compliance standards shall be 0.41 g/mi non-methane
16 hydrocarbon and 6.7 g/mi carbon monoxide for 50,000 miles.

17 c.
18 In-use compliance standards shall be waived beyond 50,000 miles.

19 ⁸ All passenger cars and light-duty trucks, except those diesel vehicles
20 certifying to optional standards, are subject to non-methane hydrocarbon,
21 carbon monoxide, and oxides of nitrogen standards determined on a 50,000 mile
22 durability basis and non-methane hydrocarbon and carbon monoxide standards
23 determined on a 100,000 mile durability basis.

24 ⁹ 100,000 mile NOx standards are applicable for 1996 and subsequent model-
25 year vehicles.

26 ¹⁰ Each manufacturer shall also comply with the requirements specified in
27 section 1960.1 (g)(2).
28 _____
29 _____

1 (g)(1) *LEV I Exhaust Emission Standards for PCs and LDTs.* The
2 exhaust emissions from new 1992 through 2003 model-year LEV I transitional
3 low-emission vehicles, and new 1992 through 2006 model-year LEV I low-
4 emission vehicles and ultra-low-emission vehicles, in the passenger car and
5 light-duty truck classes shall not exceed:
6
7

8 **LEV I EXHAUST EMISSION STANDARDS**
9 **FOR TRANSITIONAL LOW-EMISSION VEHICLES, LOW-EMISSION VEHICLES,**
10 **ULTRA-LOW-EMISSION VEHICLES AND ZERO-EMISSION VEHICLES**
11 **IN PASSENGER CAR AND LIGHT-DUTY TRUCK VEHICLE CLASSES**

12 [grams per mile (or g/mi)]

1		<i>Loaded</i>	<i>Durability</i>	<i>Vehicle</i>		
2	<i>Vehicle</i>	<i>Vehicle</i>	<i>Vehicle</i>	<i>Emission</i>	<i>Non-Methan</i>	
3	<i>e</i>	<i>Carbon</i>	<i>Oxides of</i>			
4	<u>Type</u>	<u>Weight (lbs)</u>	<u>Basis(mi)</u>	<u>Category</u>	<u>Organic</u>	
5	<u>Gases</u>	<u>Monoxide</u>	<u>Nitrogen</u>			
6	PC and	All	50,000	TLEV	0.125	
7	3.4	0.4				
8	LDT	0-3750	LEV	0.075	3.4	
9	0.2					
10			ULEV	0.040	1.7	
11	0.2					
12		100,000	TLEV	0.156	4.2	
13	0.6					
14			LEV	0.090	4.2	
15	0.3					
16			ULEV	0.055	2.1	
17	0.3					
18	LDT	3751-5750	50,000	TLEV	0.160	4.4
19	0.7					
20			LEV	0.100	4.4	
21	0.4					
22			ULEV	0.050	2.2	
23	0.4					
24		100,000	TLEV	0.200	5.5	
25	0.9					
26			LEV	0.130	5.5	
27	0.5					
28			ULEV	0.070	2.8	
29	0.5					

30 ¹ PC means passenger cars.
31 LDT means light-duty trucks.
32 LVW means loaded vehicle weight.
33 Non-Methane Organic Gases or NMOG means the total mass of oxygenated
34 and non-oxygenated hydrocarbon emissions.
35 ² TLEV means transitional low-emission vehicle.
36 LEV means low-emission vehicle.

1 ULEV means ultra-low-emission vehicle.

2 ³ *Compliance with NMOG Standard.* To demonstrate compliance with an NMOG
3 standard, NMOG emissions shall be measured in accordance with the California
4 Non-Methane Organic Gas Test Procedures as adopted July 12, 1991 and last
5 amended July 30, 2002, which is incorporated herein by reference.

6 a. *Reactivity Adjustment.* For TLEVs, LEVs, and ULEVs
7 certified to operate exclusively on any fuel other than conventional
8 gasoline, and for fuel-flexible and dual-fuel TLEVs, LEVs, and ULEVs
9 when certifying on a fuel other than gasoline, manufacturers shall
10 multiply NMOG exhaust certification levels by the applicable reactivity
11 adjustment factor set forth in section 13 of the California Exhaust
12 Emission Standards and Test Procedures for 1988 Through 2000 Model
13 Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles as
14 incorporated by reference in section 1960.1(k), or in section I.E.5. of
15 the California Exhaust Emission Standards and Test Procedures for 2001
16 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty
17 Vehicles as incorporated by reference in section 1961(d), or
18 established by the Executive Officer pursuant to Appendix VIII or
19 section II.D. respectively of the foregoing test procedures. In
20 addition, natural gas vehicles certifying to TLEV, LEV or ULEV standards
21 shall calculate a reactivity-adjusted methane exhaust emission value by
22 multiplying the methane exhaust certification level by the applicable
23 methane reactivity adjustment factor set forth in section 13 or in
24 section I.E.5. of the above-referenced test procedures as applicable.
25 The product of the NMOG exhaust certification levels and the reactivity
26 adjustment factor shall be compared to the exhaust NMOG mass emission
27 standards established for the particular vehicle emission category to
28 determine compliance. For natural gas vehicles, the reactivity-adjusted
29 NMOG value shall be added to the reactivity-adjusted methane value and
30 then compared to the exhaust NMOG mass emission standards established
31 for the particular vehicle emission category to determine compliance.

32 b. *Fleet Average Requirement.* Each manufacturer shall certify PCs or LDTs
33 to meet the exhaust mass emission standards for TLEVs, LEVs, ULEVs, or
34 the exhaust emission standards of sections 1960.1(e)(1), 1960.1(f)(1),
35 or 1960.1(f)(2), Title 13, California Code of Regulations, or as
36 Zero-Emission Vehicles, such that the manufacturer's fleet average NMOG
37 values for California-certified PCs and LDTs from 0-3750 lbs. LVW, and
38 LDTs from 3751-5750 lbs. LVW produced and delivered for sale in
39 California are less than or equal to the requirement for the
40 corresponding Model Year, Vehicle Type, and LVW Class in section
41 1960.1(g)(2), Title 13, California Code of Regulations.

42 ⁴ *NMOG Standards for Fuel-Flexible and Dual-Fuel Vehicles.* Fuel-flexible and
43 dual-fuel PCs and LDTs from 0-5750 lbs. LVW shall be certified to exhaust mass

1 emission standards for NMOG established for the operation of the vehicle on
 2 any available fuel other than gasoline, and gasoline.

3 a. *Reactivity Adjustment.* For TLEVs, LEVs, and ULEVs, when
 4 certifying for operation on a fuel other than gasoline, manufacturers
 5 shall multiply exhaust NMOG certification levels by the applicable
 6 reactivity adjustment factor. In addition to multiplying the exhaust
 7 NMOG certification levels by the applicable reactivity adjustment
 8 factor, exhaust methane certification levels for natural gas vehicles
 9 shall be multiplied by the applicable methane reactivity adjustment
 10 factor and the resulting value shall be added to the reactivity-adjusted
 11 NMOG value. The exhaust NMOG certification levels for fuel-flexible or
 12 dual-fuel vehicles when certifying on gasoline shall not be multiplied
 13 by a reactivity adjustment factor.

14 b. *Standards for Fuel-Flexible and Dual-Fuel Vehicles Operating on*
 15 *Gasoline.* For PCs and LDTs from 0- 5750 lbs. LVW, the applicable
 16 exhaust mass emission standard for NMOG when certifying the vehicle for
 17 operation on gasoline shall be:

Vehicle Type	Loaded Vehicle Weight (LVW)	Emission Category	Durability Vehicle Basis (g/mi)	
			50,000 Mile	100,000
PCs, LDT	All, 0-3750	TLEV	0.25	0.31
		LEV	0.125	0.156
		ULEV	0.075	0.090
LDT	3751-5750	TLEV	0.32	0.40
		LEV	0.160	0.200
		ULEV	0.100	0.130

22 ⁵ *Highway NOx.* The maximum projected emissions of Oxides of Nitrogen (or
 23 NOx) measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR 600
 24 Subpart B) shall be not greater than 1.33 times the applicable light-duty
 25 vehicle standards shown in the table. Both the projected emissions and the
 26 HWFET standard shall be rounded in accordance with ASTM E29-67 to the nearest
 27 0.1 g/mi before being compared.

28 ⁶ *Intermediate In-Use Compliance Standards.* The following standards are
 29 intermediate in-use compliance standards for 50,000 and 100,000 miles for PCs
 30 and LDTs from 0-5750 lbs. LVW, including fuel-flexible and dual-fuel vehicles
 31 when operating on any available fuel other than gasoline. Intermediate in-use
 32 compliance standards shall apply to TLEVs through the 1995 model year as
 33 follows:

1		NMOG (g/mi)
2	PCs and LDTs 0-3750 lbs. LVW	0.188
3	LDTs 3751-5750 lbs. LVW	0.238

4 In-use compliance with standards beyond 50,000 miles shall be waived through
5 the 1995 model year for TLEVs, and through the 1998 model year for LEVs and
6 ULEVs. For LEVs and ULEVs, the following intermediate in-use standards shall
7 apply:

Vehicle Type	Durability Vehicle Basis	LEV (g/mi)			ULEV (g/mi)			
		Model Year	NMOG	NOx	Model Year	NMOG	CO	NOx
10 PCs, 0- 11 3750 lb. 12 LVW LDTs	50,000	throu gh 1998	0.100	0.3	throu gh 1998	0.058	2.6	0.3
	50,000	1999	0.100	0.3	1999- 2002	0.055	2.1	0.3
	100,000	1999	0.125	0.4	1999- 2002	0.075	3.4	0.4
13 3751- 14 5750 lb. 15 LVW LDTs	50,000	throu gh 1998	0.128	0.5	throu gh 1998	0.075	3.3	0.5
	50,000	1999	0.130	0.5	1999- 2002	0.070	2.8	0.5
	100,000	1999	0.160	0.7	1999- 2002	0.100	4.4	0.7

16 a. *Reactivity Adjustment.* For TLEVs, LEVs, and ULEVs designed to
17 operate on any fuel other than conventional gasoline, including
18 fuel-flexible and dual-fuel vehicles when operating on any fuel other
19 than gasoline, exhaust NMOG mass emission results shall be multiplied by
20 the applicable reactivity adjustment factor to determine compliance with
21 intermediate in-use compliance standards for NMOG. In addition to
22 multiplying the exhaust NMOG emission results by the applicable
23 reactivity adjustment factor, the exhaust methane emission results for
24 natural gas vehicles shall be multiplied by the applicable methane
25 reactivity adjustment factor and the resulting value shall be added to
26 the reactivity-adjusted NMOG value. Exhaust NMOG mass emissions from
27 fuel-flexible or dual-fuel vehicles when operating on gasoline shall not
28 be multiplied by a reactivity adjustment factor.

b. *Intermediate In-Use Standards for Fuel-Flexible and Dual-Fuel Vehicles Operating on Gasoline.* For fuel-flexible and dual-fuel PCs and LDTs from 0-5750 lbs. LVW, intermediate in-use compliance standards for NMOG emissions at 50,000 miles when the vehicle is operated on gasoline shall be:

Vehicle Type	Loaded Vehicle Weight (LVW)	Emission Category	Durability Vehicle Basis (g/mi) 50,000 mi
PCs, LDT	All, 0-3750	TLEV	0.32
		LEV	0.188
		ULEV	0.100
LDT	3751-5750	TLEV	0.41
		LEV	0.238
		ULEV	0.128

Intermediate in-use compliance standards shall apply to TLEVs through the 1995 model year, and to LEVs and ULEVs through the 1998 model year. In-use compliance with standards beyond 50,000 miles shall be waived through the 1995 model year for TLEVs and through the 1998 model year for LEVs and ULEVs.

⁷ *Diesel Standards.* Manufacturers of diesel vehicles shall also certify to particulate standards at 100,000 miles. For all PCs and LDTs from 0-3750 lbs. LVW, the particulate standard is 0.08 g/mi, 0.08 g/mi, and 0.04 g/mi for TLEVs, LEVs, and ULEVs, respectively. For LDTs from 3751-5750 lbs. LVW, the particulate standard is 0.10 g/mi, 0.10 g/mi, and 0.05 g/mi for TLEVs, LEVs and ULEVs, respectively. For diesel vehicles certifying to the standards set forth in Title 13, section 1960.1(g)(1), NMOG shall mean non-methane hydrocarbons.

⁸ *§0 Requirement.* Manufacturers shall demonstrate compliance with the above standards for NMOG, CO, and NOx at §0 according to the procedure specified in section 11k of the California Exhaust Emission Standards and Test Procedures for 1988 Through 2000 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by reference in section 1960.1(k), or according to the procedure specified in section II.C. of the California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by reference in section 1961(d), as applicable. Hybrid electric, natural gas and diesel-fueled vehicles shall be exempt from §0 test requirements.

⁹ *Limit on In-Use Testing.* In-use compliance testing shall be limited to vehicles with fewer than 75,000 miles.

¹⁰ *HEV Requirements.* Deterioration factors for hybrid electric vehicles shall be based on the emissions and mileage accumulation of the auxiliary power

1 unit. For certification purposes only, Type A hybrid electric vehicles shall
2 demonstrate compliance with 50,000 mile emission standards (using 50,000 mile
3 deterioration factors), and demonstrating compliance with 100,000 mile
4 emission standards shall not be required. For certification purposes only,
5 Type B hybrid electric vehicles shall demonstrate compliance with 50,000 mile
6 emission standards (using 50,000 mile deterioration factors) and 100,000 mile
7 emission standards (using 75,000 mile deterioration factors). For
8 certification purposes only, Type C hybrid electric vehicles shall demonstrate
9 compliance with 50,000 mile emission standards (using 50,000 mile
10 deterioration factors) and 100,000 mile emission standards (using 100,000 mile
11 deterioration factors).

12 ¹¹ *NMOG Credit for Direct Ozone Reduction Technology.* A manufacturer that
13 certifies vehicles equipped with direct ozone reduction technologies shall be
14 eligible to receive NMOG credits that can be applied to the NMOG exhaust
15 emissions of the vehicle when determining compliance with the standard. In
16 order to receive credit, the manufacturer must submit the following
17 information for each vehicle model, including, but not limited to:

- 18 a. a demonstration of the airflow rate through the direct ozone
19 reduction device and the ozone-reducing efficiency of the device over
20 the range of speeds encountered in the SFTP test cycle;
- 21 b. an evaluation of the durability of the device for the full useful life
22 of the vehicle; and
- 23 c. a description of the on-board diagnostic strategy for monitoring the
24 performance of the device in-use.

25 Using the above information, the Executive Officer shall determine the
26 value of the NMOG credit based on the calculated change in the one-hour
27 peak ozone level using an approved airshed model.
28

29 (g)(2) The fleet average non-methane organic gas exhaust emission
30 values from passenger cars and light-duty trucks produced and delivered for
31 sale in California by a manufacturer each model year from 1994 through 2000
32 shall not exceed:

33
34
35
36 **FLEET AVERAGE NON-METHANE ORGANIC GAS EXHAUST MASS EMISSION**
37 **REQUIREMENTS FOR LIGHT-DUTY VEHICLE WEIGHT CLASSES** ⁷⁸⁹

38 [grams per mile- (or g/mi-)]

39 *Loaded Durability Fleet Average*

1	Vehicle	Vehicle	Vehicle	Model	N
2	on-Methane				
3	<u>Type</u>	<u>Weight (lbs.)</u>	<u>Basis ⁷(mi)</u>	<u>Year</u>	<u>Organic</u>
4	<u>Gases</u>				
5	PC and	All	50,000	1994	0.250
6	LDT	0-3750		1995	0.231
7				1996	0.225
8				1997	0.202
9				1998	0.157
10				1999	0.113
11				2000	0.073
12	LDT	3751-5750	50,000	1994	0.320
13				1995	0.295
14				1996	0.287
15				1997	0.260
16				1998	0.205
17				1999	0.150
18				2000	0.099

19 ¹ PC means passenger cars.
20 LDT means light-duty trucks.
21 TLEV means transitional low-emission vehicle.
22 LEV means low-emission vehicle.
23 ULEV means ultra-low-emission vehicle.
24 LVW means loaded vehicle weight.
25 ² Non-Methane Organic Gases (or NMOG) means the total mass of oxygenated
26 and non-oxygenated hydrocarbon emissions.
27 ³ HEV Categories. For the purpose of calculating fleet average NMOG values,
28 a manufacturer may adjust the certification levels of hybrid electric vehicles
29 (or HEVs) based on the range of the HEV without the use of the engine. For
30 the purpose of calculating the adjusted NMOG emissions, the following
31 definitions shall apply:

32 Type A HEV shall mean an HEV which achieves a minimum range of 60
33 miles over the All-Electric Range Test as defined in California Exhaust
34 Emission Standards and Test Procedures for 1988 Through 2000 Model
35 Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles as
36 incorporated by reference in section 1960.1(k), or in California
37 Exhaust Emission Standards and Test Procedures for 2001 and Subsequent

1 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles as
2 incorporated by reference in section 1961(d), as applicable.

3 *Type B HEV* shall mean an HEV which achieves a range of 40 - 59 miles over
4 the All-Electric Range Test as defined in California Exhaust Emission
5 Standards and Test Procedures for 1988 Through 2000 Model Passenger
6 Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by
7 reference in section 1960.1(k), or in California Exhaust Emission
8 Standards and Test Procedures for 2001 and Subsequent Model Passenger
9 Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by
10 reference in section 1961(d), as applicable.

11 *Type C HEV* shall mean an HEV which achieves a range of 0 - 39 miles over
12 the All-Electric Range Test as defined in California Exhaust Emission
13 Standards and Test Procedures for 1988 Through 2000 Model Passenger
14 Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by
15 reference in section 1960.1(k), or in California Exhaust Emission
16 Standards and Test Procedures for 2001 and Subsequent Model Passenger
17 Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by
18 reference in section 1961(d), as applicable, and all other HEVs
19 excluding Type A and Type B HEVs.

- 20 a. For the purpose of calculating fleet average NMOG values, vehicles which
21 have no tailpipe emissions but use fuel-fired heaters and which are not
22 certified as ZEVs shall be treated as Type A HEV ULEVs.

23 ⁴ *Calculation of Fleet Average NMOG Value (PCs and LDTs 0-3750 lbs. LVW).*

24 Each manufacturer's fleet average NMOG value for the total number of PCs and
25 LDTs from 0-3750 lbs. LVW produced and delivered for sale in California shall
26 be calculated in units of g/mi NMOG according to the following equation, where
27 the term Produced means produced and delivered for sale in California:
28

$$\begin{aligned} & \{[(\text{No. of Vehicles Certified to the Exhaust Emission Standards in section} \\ & 1960.1 (e)(1) \text{ and Produced}) \times (0.39)] + \\ & [(\text{No. of Vehicles Certified to the Phase-In Exhaust Emission Standards in} \\ & \text{section 1960.1 (f)(1) and Produced}) \times (0.25)] + \\ & [(\text{No. of Vehicles Certified to the Phase-Out Exhaust Emission Standards in} \\ & \text{section 1960.1 (f)(1) and Produced}) \times (0.39)] + \\ & [(\text{No. of Vehicles Certified to the Exhaust Emission Standards in section} \\ & 1960.1(f)(2) \text{ and Produced}) \times (0.25)] + \\ & [(\text{No. of TLEVs excluding HEVs and Produced}) \times (0.125)] + \\ & [(\text{No. of LEVs excluding HEVs and Produced}) \times (0.075)] + \\ & [(\text{No. of ULEVs excluding HEVs and Produced}) \times (0.040)] + \\ & (\text{HEV contribution factor})\} \\ & (\text{Total No. of Vehicles Produced, Including Zero-Emission Vehicles and} \\ & \text{HEVs}): \end{aligned}$$

- 43 a. HEV contribution factor shall mean the NMOG emission
44 contribution of HEVs to the fleet average NMOG value. The HEV

1 contribution factor shall be calculated in units of g/mi as follows,
2 where the term Produced means produced and delivered for sale in
3 California:

4 HEV contribution factor =

5 {[No. of Type A HEV TLEVs Produced] x (0.100) +
6 [No. of Type B HEV TLEVs Produced] x (0.113) +
7 [No. of Type C HEV TLEVs Produced] x (0.125)} +
8 {[No. of Type A HEV LEVs Produced] x (0.057) +
9 [No. of Type B HEV LEVs Produced] x (0.066) +
10 [No. of Type C HEV LEVs Produced] x (0.075)} +
11 {[No. of Type A HEV ULEVs Produced] x (0.020) +
12 [No. of Type B HEV ULEVs Produced] x (0.030) +
13 [No. of Type C HEV ULEVs Produced] x (0.040)}

14 b. Zero-Emission Vehicles (or ZEVs) classified as LDTs 3751-5750
15 lbs. LVW which have been counted toward the ZEV requirements for PCs and
16 LDTs 0-3750 lbs. LVW as specified in note (9) shall be included in the
17 equation of note (4).

18 c. Beginning with the 1996 model year, manufacturers that produce and
19 deliver for sale in California PCs and LDTs 0-3750 lbs. LVW that are
20 certified to federal Tier I exhaust emission standards in 40 CFR
21 86.094-8 and 86.094-9 shall add the following term to the numerator of
22 the fleet average NMOG equation in note (4) calculate their fleet
23 average NMOG values accordingly:

24 [No. of Vehicles Certified to federal Tier I exhaust emission standards
25 and Produced] x (0.25)]

26 ⁵ Calculation of Fleet Average NMOG Value (LDTs 3751-5750 lbs. LVW).
27 Manufacturers that certify LDTs from 3751-5750 lbs. LVW, shall calculate a
28 fleet average NMOG value in units of g/mi NMOG according to the following
29 equation, where the term Produced means produced and delivered for sale in
30 California:

31 {[(No. of Vehicles Certified to the Exhaust Emission Standards in section
32 1960.1 (e)(1), and Produced x (0.50))] +
33 [(No. of Vehicles Certified to the Phase-In Exhaust Emission Standards in
34 section 1960.1 (f)(1), and Produced x (0.32))] +
35 [(No. of Vehicles Certified to the Phase-Out Exhaust Emission Standards in
36 section 1960.1 (f)(1), and Produced x (0.50))] +

1 [(No. of Vehicles Certified to the Exhaust Emission Standards in section
2 1960.1 (f)(2), and Produced x (0.32)] +
3 [(No. of TLEVs Produced excluding HEVs) x (0.160)] + [(No. of LEVs Produced
4 excluding HEVs) x (0.100)] +
5 [(No. of ULEVs Produced excluding HEVs) x (0.050)] +
6 (HEV contribution factor)}
7 (Total No. of Vehicles Produced, Including ZEVs and HEVs).

8 a. HEV contribution factor shall mean the NMOG emission
9 contribution of HEVs to the fleet average NMOG. The HEV contribution
10 factor shall be calculated in units of g/mi as follows, where the term
11 Produced means produced and delivered for sale in California.

12 HEV contribution factor =

13 {[No. of Type A HEV TLEVs Produced] x (0.130) +
14 [No. of Type B HEV TLEVs Produced] x (0.145) +
15 [No. of Type C HEV TLEVs Produced] x (0.160)} +
16 {[No. of Type A HEV LEVs Produced] x (0.075) +
17 [No. of Type B HEV LEVs Produced] x (0.087) +
18 [No. of Type C HEV LEVs Produced] x (0.100)} +
19 {[No. of Type A HEV ULEVs Produced] x (0.025) +
20 [No. of Type B HEV ULEVs Produced] x (0.037) +
21 [No. of Type C HEV ULEVs Produced] x (0.050)}

22 b. Only ZEVs which have been certified as LDTs 3751-5750 lbs. LVW and
23 which have not been counted toward the ZEV requirements for PCs and LDTs
24 0-3750 lbs. LVW as specified in note (9) shall be included in the
25 equation of note (5).

26 c. Beginning with the 1996 model year, manufacturers that produce and
27 deliver for sale in California LDTs 3751-5750 lbs. LVW that are
28 certified to the Tier I exhaust emission standards in 40 CFR 86.094-9
29 shall add the following term to the numerator of the fleet average NMOG
30 equation in note (5) and calculate their fleet average NMOG values
31 accordingly:

32 [(No. of Vehicles Certified to federal Tier I exhaust emission
33 standards and Produced and Delivered for Sale in California) x
34 (0.32)]

35 ⁶ *Requirements for Small Volume Manufacturers.* As used in this subsection,
36 the term small volume manufacturer shall mean any vehicle manufacturer with
37 California sales less than or equal to 3000 new PCs, LDTs and MDVs per model
38 year based on the average number of vehicles sold by the manufacturer each
39 model year from 1989 to 1991, except as noted below. For manufacturers
40 certifying for the first time in California, model-year sales shall be based
41 on projected California sales. In 2000 and subsequent model years, small

1 volume manufacturers shall comply with the fleet average NMOG requirements set
2 forth below.

- 3 a. Prior to the model year 2000, compliance with the specified fleet
4 average NMOG requirements shall be waived.
- 5 b. In the 2000 model year, small volume manufacturers shall not exceed a
6 fleet average NMOG value of 0.075 g/mi for PCs and LDTs from 0-3750 lbs.
7 LVW calculated in accordance with note (4).
- 8 c. In the 2000 model year, small volume manufacturers shall not exceed a
9 fleet average NMOG value of 0.100 g/mi for LDTs from 3751-5750 lbs. LVW
10 calculated in accordance with note (5).
- 11 d. If a manufacturer s average California sales exceeds 3000 units of new
12 PCs, LDTs, and MDVs based on the average number of vehicles sold for any
13 three consecutive model years, the manufacturer shall no longer be
14 treated as a small volume manufacturer and shall comply with the fleet
15 average requirements applicable for larger manufacturers as specified in
16 section 1960.1(g)(2) beginning with the fourth model year after the last
17 of the three consecutive model years.
- 18 e. If a manufacturer s average California sales falls below 3000 units of
19 new PCs, LDTs, and MDVs based on the average number of vehicles sold for
20 any three consecutive model years, the manufacturer shall be treated as
21 a small volume manufacturer and shall be subject to requirements for
22 small volume manufacturers as specified in section 1960.1(g)(2)
23 beginning with the next model year.

24 ⁷ *Calculation of NMOG Credits/Debits and Procedure for Offsetting Debits.*

25 a. In 1992 through 2000 model years, manufacturers that achieve fleet
26 average NMOG values lower than the fleet average NMOG requirement for
27 the corresponding model year shall receive credits in units of g/mi NMOG
28 determined as:

29 $\{[(\text{Fleet Average NMOG Requirement}) - (\text{Manufacturer s Fleet Average NMOG}$
30 $\text{Value})] \times (\text{Total No. of Vehicles Produced and Delivered for Sale in}$
31 $\text{California, Including ZEVs and HEVs})\}.$

32 Manufacturers with fleet average NMOG values greater than the fleet
33 average requirement for the corresponding model year shall receive
34 debits in units of g/mi NMOG equal to the amount of negative credits
35 determined by the aforementioned equation. For any given model year,
36 the total g/mi NMOG credits or debits earned for PCs and LDTs 0-3750
37 lbs. LVW and for LDTs 3751-5750 lbs. LVW shall be summed together. The
38 resulting amount shall constitute the g/mi NMOG credits or debits
39 accrued by the manufacturer for the model year.

- 1 b. For the 1994 through 1997 model years, manufacturers shall equalize
2 emission debits within three model years and prior to the end of the
3 1998 model year by earning g/mi NMOG emission credits in an amount equal
4 to their g/mi NMOG debits, or by submitting a commensurate amount of
5 g/mi NMOG credits to the Executive Officer that were earned previously
6 or acquired from another manufacturer. For 1998 through 2000 model
7 years, manufacturers shall equalize emission debits by the end of the
8 following model year. If emission debits are not equalized within the
9 specified time period, the manufacturer shall be subject to the Health
10 and Safety Code section 43211 civil penalty applicable to a manufacturer
11 which sells a new motor vehicle that does not meet the applicable
12 emission standards adopted by the state board. The cause of action
13 shall be deemed to accrue when the emission debits are not equalized by
14 the end of the specified time period. For the purposes of Health and
15 Safety Code section 43211, the number of vehicles not meeting the state
16 board s emission standards shall be determined by dividing the total
17 amount of g/mi NMOG emission debits for the model year by the g/mi NMOG
18 fleet average requirement for PCs and LDTs 0-3750 lbs. LVW applicable
19 for the model year in which the debits were first incurred.
- 20 c. The g/mi NMOG emission credits earned in any given model year shall
21 retain full value through the subsequent model year. The g/mi NMOG
22 value of any credits not used to equalize the previous model-year s
23 debit, shall be discounted by 50% at the beginning of the second model
24 year after being earned, discounted to 25% of its original value if not
25 used by the beginning of the third model year after being earned, and
26 will have no value if not used by the beginning of the fourth model year
27 after being earned.
- 28 d. In order to verify the status of a manufacturer s compliance with the
29 fleet average requirements for a given model year, and in order to
30 confirm the accrual of NMOG credits or debits, each manufacturer shall
31 submit an annual report to the Executive Officer which sets forth the
32 production data used to establish compliance, by no later than March 1
33 of the calendar year following the close of the completed model year.

34 ⁸ *Credits for Pre-1994 Model-Year Vehicles.* Manufacturers that produce and
35 deliver for sale in California vehicles certified to the phase-in exhaust
36 emission standards in section 1960.1 (f)(1), or vehicles certified to the
37 exhaust emission standards in sections 1960.1(f)(2) or 1960.1(g)(1) and/or
38 ZEVs, in the 1992 and 1993 model years, shall receive emission credits as
39 determined by the equations in footnotes (4), (5), and (7).

- 40 a. For PCs and LDTs from 0-3750 lbs. LVW, the fleet average NMOG
41 requirement for calculating a manufacturer s emission credits shall be
42 0.390 and 0.334 g/mi NMOG for vehicles certified for the 1992 and 1993
43 model years, respectively.

- 1 b. For LDTs from 3751-5750 lbs. LVW, the fleet average NMOG requirement for
 2 calculating a manufacturer s emission credits shall be 0.500 and 0.428
 3 g/mi NMOG for vehicles certified for the 1992 and 1993 model years,
 4 respectively.
 5 c. Emission credits earned prior to the 1994 model year shall be considered
 6 as earned in the 1994 model year and discounted in accordance with the
 7 schedule specified in footnote (7).

8
 9 (h)(1) *Tier 1 Exhaust Emission Standards for MDVs.* The exhaust
 10 emission from new 1995 through 2003 model Tier 1 medium-duty vehicles shall
 11 not exceed:

12 **1995-2003 MODEL-YEAR TIER 1**
 13 **MEDIUM-DUTY VEHICLE EXHAUST EMISION STANDARDS** ^{1,2,3,7,8}
 14 (grams per mile)

<i>Durability</i>						
<i>Test</i>	<i>Vehicle</i>	<i>Non-Methane</i>	<i>Carbon</i>	<i>Oxides of</i>		
<i>Weight (lbs.)</i>	<i>Basis (mi.)</i>	<i>Hydrocarbons</i>	<i>Monoxide</i>			
<i>Nitrogen</i>	<i>Particulates</i>					
19 0-3,750	50,000	0.25	3.4	0.4		n/a
20 0-3,750	120,000	0.36	5.0	0.55		0.08
21 3,751-5,750	50,000	0.32	4.4	0.7		n/a
22 3.751-5,750	120,000	0.46	6.4	0.98		0.10
23 5,751-8,500	50,000	0.39	5.0	1.1		n/a
24 5,751-8,500	120,000	0.56	7.3	1.53		0.12
25 8,501-10,000		50,000	0.46	5.5	1.3	n/a
26 8,501-10,000		120,000	0.66	8.1	1.81	0.12
27 10,001-14,000		50,000	0.60	7.0	2.0	n/a
28 10,001-14,000		120,000	0.86	10.3	2.77	0.12

29 ¹ n/a means not applicable.

1 Test Weight shall mean the average of the vehicle s curb weight and gross
2 vehicle weight.

3 ² Manufacturers have the option of certifying engines used in incomplete and
4 diesel medium-duty vehicles from 8,501-14,000 pounds, gross vehicle weight to
5 the heavy-duty engine standards and test procedures set forth in section
6 1956.8(e), Title 13, California Code of Regulations. Manufacturers certifying
7 incomplete or diesel medium-duty vehicles to the heavy-duty engine standards
8 and test procedures shall specify, in the application for certification, an
9 in-use compliance test procedure, as provided in section 2139 (c), Title 13,
10 California Code of Regulations.

11 ³ For the 1995 model-year only, manufacturers of medium-duty vehicles may
12 certify a maximum of 50 percent of their vehicles to the applicable 1994
13 model-year standards and test procedures. For the 1995 model-year only, small
14 volume manufacturers may certify 100 percent of their vehicles to the
15 applicable 1994 model-year standards and test procedures. The percentage
16 shall be based upon each manufacturer s projected sales of California-
17 certified medium-duty vehicles.

18 ⁴ For methanol- and ethanol-fueled vehicles certifying to these standards,
19 including flexible-fueled vehicles when certifying on methanol or ethanol,
20 Non-Methane Hydrocarbons shall mean Organic Material Non-Methane
21 Hydrocarbon Equivalent (or OMNMHCE).

22 ⁵ The maximum projected emissions of oxides of nitrogen measured on the
23 federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B) shall be
24 not greater than 2.00 times the applicable medium-duty vehicle standards shown
25 in the table. Both the projected emissions and the HWFET standards shall be
26 rounded in accordance with ASTM E29-67 to the nearest 0.1 g/mi before being
27 compared.

28 ⁶ Particulate standards are only applicable for diesel vehicles and shall be
29 determined on a 120,000 mile basis.

30 ⁷ In-use compliance testing shall be limited to vehicles with less than
31 90,000 miles. For the 1995 through 1997 models, alternative in-use compliance
32 is available for medium-duty vehicle manufacturers. A manufacturer may use
33 alternative in-use compliance for up to 100 percent of its fleet in the 1995
34 and 1996 model years and up to 50 percent of its fleet in the 1997 model year.
35 Small volume manufacturers may use alternative in-use compliance for up to 100
36 percent of their fleets in the 1995 through 1997 model years. The percentages
37 shall be determined from the manufacturers projected California sales of
38 medium-duty vehicles. For vehicles certified to the standards and test
39 procedures of this subsection, alternative in-use compliance shall consist
40 of an in-use allowance of 25 percent over the applicable 1995 model-year non-
41 methane hydrocarbon, carbon monoxide, and oxides of nitrogen 50,000 mile
42 emission standards and a waiver of the emission standards beyond 50,000 miles.

43 ⁸ All medium-duty vehicles, except diesel-fueled vehicles and those
44 incomplete and diesel vehicles certifying to heavy-duty engine test
45 procedures, are subject to 50,000 mile and 120,000 mile non-methane
46 hydrocarbon, carbon monoxide, and oxides of nitrogen standards. Diesel-fueled

1 vehicles shall be subject to 120,000 mile non-methane hydrocarbon, carbon
 2 monoxide, oxides of nitrogen, and particulate standards only.

3 (h)(2) LEV I Exhaust Emission Standards for MDVs. The exhaust
 4 emissions from new 1992 through 2006 model-year medium-duty LEV I low-emission
 5 vehicles, ultra-low-emission vehicles and super-ultra-low-emission vehicles
 6 shall not exceed:

7 **LEV I EXHAUST EMISSION STANDARDS FOR**
 8 **LOW-EMISSION VEHICLES, ULTRA-LOW-EMISSION VEHICLES**
 9 **AND SUPER-ULTRA-LOW-EMISSION VEHICLES IN THE**
 10 **MEDIUM-DUTY VEHICLE WEIGHT CLASS** ^{8,9,10,11,12,13,14,15,16}

11 [grams per mile (or g/mi)]

12	<i>Durability</i>		<i>Vehicle</i>				
13	<i>Test</i>	<i>Vehicle</i>	<i>Emission</i>	<i>Non-Methane</i>	<i>Carbon</i>	<i>Oxides of</i>	
14	<i>Weight (lbs.)</i>	<i>Basis (mi.)</i>	<i>Category</i>	<i>Organic</i>	<i>Gases</i>	<i>Monoxide</i>	<i>Nitrogen</i>
15	<i>Particulates</i>						
16	0-3,750	50,000	LEV	0.125	3.4	0.4	n/a
17			ULEV	0.075	1.7	0.2	n/a
18		120,000	LEV	0.180	5.0	0.6	0.08
19			ULEV	0.107	2.5	0.3	0.04
20	3,751-5,750	50,000	LEV	0.160	4.4	0.4	n/a
21			ULEV	0.100	4.4	0.4	n/a
22			SULEV	0.050	2.2	0.2	n/a
23		120,000	LEV	0.230	6.4	0.6	0.10
24			ULEV	0.143	6.4	0.6	0.05
25			SULEV	0.072	3.2	0.3	0.05
26	5,751-8,500	50,000	LEV	0.195	5.0	0.6	n/a
27			ULEV	0.117	5.0	0.6	n/a
28			SULEV	0.059	2.5	0.3	n/a
29		120,000	LEV	0.280	7.3	0.9	0.12
30			ULEV	0.167	7.3	0.9	0.06
31			SULEV	0.084	3.7	0.45	0.06

1	8,501-10,000	50,000	LEV	0.230	5.5	0.7
2	n/a					
3			ULEV	0.138	5.5	0.7
4			SULEV	0.069	2.8	0.35
5	120,000		LEV	0.330	8.1	1.0
6			ULEV	0.197	8.1	1.0
7			SULEV	0.100	4.1	0.5
8	10,001-14,000	50,000	LEV	0.300	7.0	1.0
9	n/a					
10			ULEV	0.180	7.0	1.0
11			SULEV	0.09	3.5	0.5
12	120,000		LEV	0.430	10.3	1.5
13			ULEV	0.257	10.3	1.5
14			SULEV	0.130	5.2	0.7

1 ¹ Test Weight (or TW) shall mean the average of the vehicle s curb weight
2 and gross vehicle weight.

3 ² LEV means low-emission vehicle.

4 ULEV means ultra-low-emission vehicle.

5 SULEV means super-ultra-low-emission vehicle.

6 ³ *Compliance with NMOG Standards.* To determine compliance with an NMOG
7 standard, NMOG emissions shall be measured in accordance with California
8 Non-Methane Organic Gas Test Procedures adopted July 12, 1991 and last
9 amended July 30, 2002, which is incorporated herein by reference.

10 a. *Reactivity Adjustment.* For LEVs and ULEVs certified to operate on
11 an available fuel other than conventional gasoline, including
12 fuel-flexible or dual-fuel vehicles when certifying on a fuel other than
13 gasoline, manufacturers shall multiply the NMOG exhaust certification
14 levels by the applicable reactivity adjustment factor set forth in
15 Section 13 of the California Exhaust Emission Standards and Test
16 Procedures for 1988 Through 2000 Model Passenger Cars, Light-Duty
17 Trucks, and Medium-Duty Vehicles as incorporated by reference in
18 section 1960.1(k), or in section I.E.5. of the California Exhaust
19 Emission Standards and Test Procedures for 2001 and Subsequent Model
20 Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles as
21 incorporated by reference in section 1961(d), or established by the
22 Executive Officer pursuant to Appendix VIII or section II.D.
23 respectively of the foregoing test procedures. In addition, natural gas
24 vehicles certifying to LEV or ULEV standards shall calculate a
25 reactivity-adjusted methane exhaust emission value by multiplying the
26 methane exhaust certification level by the applicable methane reactivity
27 adjustment factor set forth in section 13 or in section I.E.5. of the
28 above-referenced test procedures as applicable. The product of the
29 exhaust NMOG certification levels and the reactivity adjustment factor
30 shall be compared to the exhaust NMOG mass emission standard established
31 for the particular vehicle emission category to determine compliance.
32 For natural gas vehicles, the reactivity-adjusted NMOG value shall be
33 added to the reactivity-adjusted methane value and then compared to the
34 exhaust NMOG mass emission standards established for the particular
35 vehicle emission category to determine compliance.

36 b. *Pre-1998 NOx standards.* Prior to the 1998 model year, the 50,000 mile
37 and 120,000 mile LEV exhaust mass emission standards for NOx shall be:
38 0.7 and 1.0 g/mi for MDVs from 3751-5750 lbs. TW, 1.1 and 1.5 g/mi for
39 MDVs from 5751-8500 lbs. TW, 1.3 and 1.8 g/mi for MDVs from 8501-10,000
40 lbs. TW, and 2.0 and 2.8 g/mi for MDVs from 10,001-14,000 lbs. TW,
41 respectively.

42 ⁴ *NMOG Standards for Fuel-Flexible and Dual-Fuel Vehicles.* Fuel-flexible and
43 dual-fuel Medium-Duty Vehicles (or MDVs) from 0-14,000 lbs. TW shall be

certified to exhaust mass emission standards for NMOG established for the operation of the vehicle on a fuel other than gasoline, and gasoline.

a. *Reactivity Adjustment.* For LEVs and ULEVs when certifying on the fuel other than gasoline, manufacturers shall multiply the exhaust NMOG certification levels by the applicable reactivity adjustment factor. In addition to multiplying the exhaust NMOG certification levels by the applicable reactivity adjustment factor, the exhaust methane certification level for natural gas vehicles shall be multiplied by the applicable methane reactivity adjustment factor and the resulting value shall be added to the reactivity-adjusted NMOG value. When certifying on gasoline, the exhaust NMOG certification levels of fuel-flexible and dual-fuel vehicles shall not be multiplied by a reactivity adjustment factor.

b. *Standards for Fuel-Flexible and Dual-Fuel Vehicles Operating on Gasoline.* For MDVs from 0-14,000 lbs. TW, the applicable exhaust mass emission standard for NMOG when certifying the vehicle for operation on gasoline shall be:

Test Weight (lbs.)	Vehicle Emission Category	50,000 (g/mi)	120,000 (g/mi)
0-3750	LEV	0.25	0.36
	ULEV	0.125	0.180
3751-5750	LEV	0.32	0.46
	ULEV	0.160	0.230
	SULEV	0.100	0.143
5751-8500	LEV	0.39	0.56
	ULEV	0.195	0.280
	SULEV	0.117	0.167
8501-10,000	LEV	0.46	0.66
	ULEV	0.230	0.330
	SULEV	0.138	0.197
10,001-14,000	LEV	0.60	0.86
	ULEV	0.300	0.430
	SULEV	0.180	0.257

⁵ *Highway NOx.* The maximum projected emissions of Oxides of Nitrogen (or NOx) measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B) shall not be greater than 2.00 times the applicable MDV standards shown in the table. Both the projected emissions and the HWFET

1 standard shall be rounded in accordance with ASTM E29-67 to the nearest 0.1
 2 g/mi before being compared.

3 ⁶ Particulate standards are only applicable for diesel vehicles and shall be
 4 determined on a 120,000 mile basis.

5 ⁷ n/a means not applicable.

6 ⁸ *Certification of Incomplete and Diesel Vehicles.* Manufacturers have the
 7 option of certifying engines used in incomplete and diesel MDVs to the
 8 heavy-duty engine standards and test procedures set forth in Section 1956.8(g)
 9 or (h), Title 13, California Code of Regulations. Manufacturers certifying
 10 incomplete or diesel MDVs to the heavy-duty engine standards and test
 11 procedures shall specify in the application for certification an in-use
 12 compliance procedure as provided in Section 2139(c), Title 13, California Code
 13 of Regulations. For diesel vehicles certifying to the standards set forth in
 14 Title 13, section 1960.1(h)(2), NMOG shall mean non-methane hydrocarbons.

15 ⁹ *Intermediate In-Use Compliance Standards.* The following intermediate in-use
 16 compliance standards for 50,000 miles and 120,000 miles for MDVs from
 17 3751-14,000 lbs. TW, including fuel-flexible and dual-fuel vehicles when
 18 operating on an available fuel other than gasoline, shall apply for the
 19 specified model years only:

Intermediate In-Use Compliance Standards*										
(in grams per mile)										
Emission Category	Model Year	Durability Vehicle Basis (mi)	3751-5750 lbs.		5751 - 8500 lbs.		8501-10,000 lbs.		10,001-14,000 lbs.	
			NMOG	NOx	NMOG	NOx	NMOG	NOx	NMOG	NOx
LEV	through 1997	50,000	0.238	0.7	0.293	1.1	0.345	1.3	0.450	2.0
	1998-1999	50,000	0.238	0.6	0.293	0.9	0.345	1.0	0.450	1.5
	2000	50,000	--	0.6	--	0.9	--	1.0	--	1.5
	2000	120,000	--	0.8	--	1.2	--	1.3	--	2.0
ULEV	through 1999	50,000	0.128	0.6	0.156	0.9	0.184	1.0	0.240	1.5
	2000	50,000	0.128	0.6	0.156	0.9	0.184	1.0	0.240	1.5
	2000	120,000	0.160	0.8	0.195	1.2	0.230	1.3	0.300	2.0
	2001-2002	50,000	0.128	--	0.156	--	0.184	--	0.240	--
	2001-2002	120,000	0.160	--	0.195	--	0.230	--	0.300	--
SULEV	through 2002	50,000	0.072	0.3	0.084	0.45	0.100	0.5	0.130	0.7
	2002	120,000	0.100	0.4	0.117	0.6	0.138	0.65	0.180	1.0

1 In-use compliance with standards beyond 50,000 miles shall be waived
 2 through the 1999 model year for LEVs and ULEVs and through the 2001 model
 3 year for SULEVs.

4 *Dashes mean that the standard in the section (h)(2) table applies.

5 a. *Reactivity Adjustment.* For LEVs and ULEVs designed to operate on
 6 an available fuel other than conventional gasoline, including
 7 fuel-flexible and dual-fuel vehicles when operating on an available fuel
 8 other than gasoline, NMOG exhaust mass emission results shall be
 9 multiplied by the applicable reactivity adjustment factor to determine
 10 compliance with intermediate in-use compliance standards for NMOG. In
 11 addition to multiplying the exhaust NMOG mass emission results by the
 12 applicable reactivity adjustment factor, natural gas vehicles shall
 13 multiply the exhaust methane mass emission results by the applicable
 14 methane reactivity adjustment factor and add that value to the
 15 reactivity-adjusted NMOG value. For fuel-flexible and dual-fuel
 16 vehicles when operating on gasoline, NMOG emission results shall not be
 17 multiplied by a reactivity adjustment factor.

18 b. *Gasoline Standards for Fuel-Flexible and Dual-Fuel Vehicles.* For
 19 fuel-flexible and dual-fuel MDVs from 0-14,000 lbs. TW, intermediate
 20 in-use compliance standards for NMOG emissions at 50,000 miles, when the
 21 vehicle is operated on gasoline, shall be:

Fuel-Flexible and Dual-Fuel MDVs Intermediate In-Use Compliance		
Test Weight (lbs.)	Vehicle Emission Category	50,000 (g/mi)
0-3750	LEV	0.32
	ULEV	0.188
3751-5750	LEV	0.41
	ULEV	0.238
	SULEV	0.128
5751-8500	LEV	0.49
	ULEV	0.293
	SULEV	0.156
8501-10,000	LEV	0.58
	ULEV	0.345

	SULEV	0.184	
1	10,001-	LEV	0.75
2	14,000	ULEV	0.450
	SULEV	0.240	

3 Intermediate in-use compliance standards shall apply to LEVs and ULEVs
4 through the 1999 model year and to SULEVs through the 2001 model year.
5 Compliance with the standards beyond 50,000 miles shall be waived through
6 the 1999 model year for LEVs and ULEVs and through the 2001 model year for
7 SULEVs.

8 ¹⁰ *Medium-Duty Vehicle Phase-In Requirements.* Each manufacturer's MDV fleet
9 shall be defined as the total number of California certified MDVs from
10 0-14,000 lbs. TW produced and delivered for sale in California.

- 1 a. Manufacturers of MDVs shall certify an equivalent percentage of their
 2 MDV fleet according to the following phase-in schedule:

Model Year	Vehicles Certified to Title 13 CCR Section 1960.1(h)(1) or (h)(2) (%)			Vehicles Certified to Title 13 CCR Section 1956.8(g) or (h) (%)		
	Tier 1	LEV	ULEV	Tier 1	LEV	ULEV
1998	73	25	2	100	0	0
1999	48	50	2	100	0	0
2000	23	75	2	100	0	0

- 9 b. [Reserved]
- 10 c. The percentages shall be applied to the manufacturers total production
 11 of California-certified medium-duty vehicles delivered for sale in
 12 California.
- 13 d. These requirements shall not apply to small volume manufacturers. Small
 14 volume manufacturers shall comply with the requirements of note (16)
 15 below.

16 ¹¹ *Definition of HEV.* For the purpose of calculating Vehicle Equivalent
 17 Credits (or VECs), the contribution of hybrid electric vehicles (or HEVs)
 18 will be calculated based on the range of the HEV without the use of the
 19 engine. For purpose of calculating the contribution of HEVs to the VECs, the
 20 following definitions shall apply:

21 *Type A HEV* shall mean an HEV which achieves a minimum range of 60
 22 miles over the All-Electric Range Test as defined in California Exhaust
 23 Emission Standards and Test Procedures for 1988 Through 2000 Model
 24 Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles as
 25 incorporated by reference in section 1960.1(k), or in California
 26 Exhaust Emission Standards and Test Procedures for 2001 and Subsequent
 27 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles as
 28 incorporated by reference in section 1961(d), as applicable.

29 *Type B HEV* shall mean an HEV which achieves a range of 40 - 59 miles over
 30 the All-Electric Range Test as defined in California Exhaust Emission
 31 Standards and Test Procedures for 1988 Through 2000 Model Passenger
 32 Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by
 33 reference in section 1960.1(k), or in California Exhaust Emission
 34 Standards and Test Procedures for 2001 and Subsequent Model Passenger

1 Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by
2 reference in section 1961(d), as applicable.

3 *Type C HEV* shall mean an HEV which achieves a range of 0 - 39 miles over
4 the All-Electric Range Test as defined in California Exhaust Emission
5 Standards and Test Procedures for 1988 Through 2000 Model Passenger
6 Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by
7 reference in section 1960.1(k), or in California Exhaust Emission
8 Standards and Test Procedures for 2001 and Subsequent Model Passenger
9 Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by
10 reference in section 1961(d), as applicable, and all other HEVs
11 excluding Type A and Type B HEVs.

12 ¹² *Calculation of Vehicle Equivalent Credits.* In 1992 through 2000 model
13 years, manufacturers that produce and deliver for sale in California MDVs in
14 excess of the equivalent requirements for LEVs and/or ULEVs certified to the
15 exhaust emission standards set forth in this section (h)(2) or Title 13, CCR
16 Section 1956.8(h), shall receive VECs calculated in accordance with the
17 following equation, where the term Produced means produced and delivered for
18 sale in California:

1 {[(No. of LEVs Produced excluding HEVs) + (No. of Type C HEV LEVs
 2 Produced)] +
 3 [(No. of Type A HEV LEVs Produced) x (1.2)] +
 4 [(No of Type B HEV LEVs Produced) x (1.1)] -
 5 (Equivalent No. of LEVs Required to be Produced)} +
 6 {(1.4) x [(No. of ULEVs Produced excluding HEVs) + (No. of Type C HEV
 7 ULEVs Produced)] +
 8 [(1.7) x (No. of Type A HEV ULEVs Produced)] +
 9 [(1.5) x (No. of Type B HEV ULEVs Produced)] -
 10 [(1.4) x (Equivalent No. of ULEVs Required to be Produced)]} +
 11 {[(1.7) x [(No. of SULEVs Produced excluding HEVs) + (No. of Type C HEV
 12 SULEVs Produced)] +
 13 [(No. of Type A HEV SULEVs Produced) x (1.7)] +
 14 [(No. of Type B HEV SULEVs) x (1.5)] -
 15 [(1.7) x [(Equivalent No. of SULEVs Required to be Produced)]]} +
 16 [(2.0) x (No. of ZEVs Certified and Produced as MDVs)].

17 a. Manufacturers that fail to produce and deliver for sale in California
 18 the equivalent quantity of MDVs certified to LEV and/or ULEV exhaust
 19 emission standards, shall receive Vehicle-Equivalent Debits (or VEDs)
 20 equal to the amount of negative VECs determined by the aforementioned
 21 equation.

22 b. Manufacturers shall equalize emission debits within one model year
 23 by earning VECs in an amount equal to their previous model-year s total
 24 of VEDs, or by submitting a commensurate amount of VECs to the Executive
 25 Officer that were earned previously or acquired from another
 26 manufacturer. Any manufacturer which fails to equalize emission debits
 27 within the specified time period shall be subject to the Health and
 28 Safety Code civil penalty applicable to a manufacturer which sells a new
 29 motor vehicle that does not meet the applicable emission standards
 30 adopted by the state board. The cause of action shall be deemed to
 31 accrue when the emission debits are not equalized by the end of the
 32 specified time period. For the purposes of Health and Safety Code
 33 section 43211, the number of vehicles not meeting the state board s
 34 emission standards shall be equal to the amount of VEDs incurred.

35 c. The VECs earned in any given model year shall retain full value through
 36 the subsequent model year.

37 d. The value of any VECs not used to equalize the previous model-year s
 38 debit, shall be discounted by 50% at the beginning of second model year
 39 after being earned, discounted to 25% of its original value if not used
 40 by the beginning of the third model year after being earned, and will
 41 have no value if not used by the beginning of the fourth model year
 42 after being earned.

- 1 e. Any VECs earned prior to the 1998 model year shall be treated as earned
2 in the 1998 model year and discounted in accordance with the schedule
3 specified in note (12)(d).
- 4 f. Only ZEVs certified as MDVs shall be included in the calculation of
5 VECs.
- 6 g. In order to verify the status of a manufacturer's compliance with the
7 phase-in requirements of this section and in order to confirm the
8 accrual of VECs or VEDs, each manufacturer shall submit an annual report
9 to the Executive Officer which sets forth the production data used to
10 establish compliance by no later than March 1 of the calendar year
11 following the close of the model year.

12 ¹³ **§0 Requirement.** Manufacturers shall demonstrate compliance with the
13 above standards for NMOG, carbon monoxide, and oxides of nitrogen at **§0**
14 according to the procedure specified in section 11k of the California Exhaust
15 Emission Standards and Test Procedures for 1988 Through 2000 Model Passenger
16 Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by
17 reference in section 1960.1(k), or according to the procedure specified in
18 section II.C. of the California Exhaust Emission Standards and Test
19 Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks,
20 and Medium-Duty Vehicles as incorporated by reference in section 1961(d), as
21 applicable. Hybrid electric, natural gas and diesel-fueled vehicles shall be
22 exempt from **§0** test requirements.

23 ¹⁴ In-use compliance testing shall be limited to vehicles with fewer than
24 90,000 miles.

25 ¹⁵ **HEV Requirements.** Deterioration factors for hybrid electric vehicles shall
26 be based on the emissions and mileage accumulation of the auxiliary power
27 unit. For certification purposes only, Type A hybrid electric vehicles shall
28 demonstrate compliance with 50,000 mile emission standards (using 50,000 mile
29 deterioration factors), and demonstrating compliance with 120,000 mile
30 emission standards shall not be required. For certification purposes only,
31 Type B hybrid electric vehicles shall demonstrate compliance with 50,000 mile
32 emission standards (using 50,000 mile deterioration factors) and 120,000 mile
33 emission standards (using 90,000 mile deterioration factors). For
34 certification purposes only, Type C hybrid electric vehicles shall demonstrate
35 compliance with 50,000 mile emission standards (using 50,000 mile
36 deterioration factors) and 120,000 mile emission standards (using 120,000 mile
37 deterioration factors).

38 ¹⁶ **Requirements for Small Volume Manufacturers.** As used in Section
39 1960.1(h)(2), the term small volume manufacturer shall mean any vehicle
40 manufacturer with California sales less than or equal to 3000 new PCs, LDTs,
41 and MDVs per model year based on the average number of vehicles sold by the
42 manufacturer each model year from 1992 to 1994, except as otherwise noted
43 below. For manufacturers certifying for the first time in California,
44 model-year sales shall be based on projected California sales.

1 a. Prior to the model year 2001, small volume manufacturers shall not
2 be required to certify, produce, or deliver LEVs and ULEVs for sale in
3 California.

4 b. If a manufacturer s average California sales exceeds 3000 units of new
5 PCs, LDTs, and MDVs based on the average number of vehicles sold for any
6 three consecutive model years, the manufacturer shall no longer be
7 treated as a small volume manufacturer and shall comply with the LEV and
8 ULEV requirements applicable for larger manufacturers as specified in
9 Section 1960.1(h)(2) beginning with the fourth model year after the last
10 of the three consecutive model years.

11 c. If a manufacturer s average California sales falls below 3000 units of
12 new PCs, LDTs, and MDVs based on the average number of vehicles sold for
13 any three consecutive model years, the manufacturer shall be treated as
14 a small volume manufacturer and shall be subject to requirements for
15 small volume manufacturers as specified in Section 1960.1(h)(2)
16 beginning with the next model year.

17 (i) *[Not applicable after December 31, 1990]*

18 (j) For Option 1 in the tables in sections (f)(1) and (f)(2), the
19 hydrocarbon and carbon monoxide compliance shall be determined on a 50,000-
20 mile durability basis. For Option 2 in the table in section (f)(2), the
21 hydrocarbon and carbon monoxide compliance shall be determined on a 100,000-
22 mile durability basis.

23 (k) The test procedures for determining compliance with these standards
24 are set forth in California Exhaust Emission Standards and Test Procedures
25 for 1981 through 1987 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty
26 Vehicles, adopted by the state board on November 23, 1976, as last amended
27 May 20, 1987, and in California Exhaust Emission Standards and Test
28 Procedures for 1988 through 2000 Model Passenger Cars, Light-Duty Trucks, and
29 Medium-Duty Vehicles, adopted by the state board on May 20, 1987 as last
30 amended August 5, 1999, both which are incorporated herein by reference, and
31 in California Exhaust Emission Standards and Test Procedures for 2001 and
32 Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,
33 as incorporated by reference in section 1961(d). The test procedures for
34 determining the compliance of 2001 through 2006 model-year hybrid electric
35 vehicles with the standards set forth in this section are set forth in
36 California Exhaust Emission Standards and Test Procedures for 2005 and
37 Subsequent Model Zero-Emission Vehicles, and 2001 and Subsequent Model Hybrid
38 Electric Vehicles, in the Passenger Car, Light-Duty Truck, and Medium-Duty
39 Vehicle Classes, as incorporated by reference in section 1962(h).

1 (l) With respect to any new vehicle required to comply with
2 the standards set forth in paragraphs (a) through (h), the
3 manufacturer's written maintenance instructions for in-use
4 vehicles shall not require scheduled maintenance more frequently
5 than or beyond the scope of maintenance permitted under the test
6 procedures referenced in paragraph (k) above. Any failure to
7 perform scheduled maintenance shall not excuse an emissions
8 violation unless the failure is related to or causative of the
9 violation.

10 (m) Any 1982, 1983, and 1984 model year vehicle required to
11 comply with the standards set forth in paragraphs (b), (c), (d),
12 and (f) which is subject to a standard set by federal law or
13 regulation controlling emissions of particulate matter must
14 conform to such standard.

15 (n) For purposes of section 1960.1(a) through (f), section
16 1960.1(h)(1), and section 1960.1.5, small volume manufacturer-
17 for the 2000 and earlier model years is any vehicle manufacturer
18 which was subject to in lieu- standards pursuant to section
19 202(b)(1)(B) of the Federal Clean Air Act (42 U.S.C. section
20 7521(b)(1)(B), as amended November 16, 1977) or a vehicle
21 manufacturer with California sales not exceeding 3,000 new motor
22 vehicles per model year based on previous model-year sales;
23 however, for manufacturers certifying for the first time in
24 California model year sales shall be based on projected
25 California sales.

26 (o) [Reserved]

27 (p) The cold temperature exhaust carbon monoxide emission
28 levels from new 1996 through 2000 and subsequent model-year
29 passenger cars, light-duty trucks and medium-duty vehicles shall
30 not exceed:

31 **1996 AND SUBSEQUENT MODEL-YEAR COLD TEMPERATURE CARBON MONOXIDE**
32 **EXHAUST EMISSIONS STANDARDS FOR PASSENGER CARS, LIGHT-DUTY**
33 **TRUCKS, AND MEDIUM-DUTY VEHICLES** ^{1,2}

(grams per mile)

Loaded Durability
Vehicle Vehicle

Vehicle Type	Weight (lbs.)	Basis (mi.)	Carbon Monoxide
Passenger Car	All	50,000	10.0
Light-Duty Truck	0-3750	50,000	10.0
Light-Duty Truck	3751-5750	50,000	12.5
Medium-Duty Vehicle	0-3750	50,000	10.0
Medium-Duty Vehicle		3751-8500	50,000 12.5

- ¹ These standards are applicable to vehicles tested in accordance with 40 CFR Part 86 Subpart C, at a nominal temperature of 20 ± 7
- ² Natural gas vehicles, diesel-fueled vehicles, hybrid electric vehicles, and zero-emission vehicles are exempt from these standards.
- ³ Medium-duty vehicles with a gross vehicle weight rating greater than 8,500 lbs. are exempt from this standard.

(q) The Supplemental Federal Test Procedure (SFTP) exhaust emission levels from new 2001 and subsequent model passenger cars and light-duty trucks, other than low-emission vehicles, ultra-low-emission vehicles, and zero-emission vehicles, shall not exceed:

SFTP EXHAUST EMISSION STANDARDS FOR 2001 AND SUBSEQUENT MODEL-YEAR PASSENGER CARS AND LIGHT-DUTY TRUCKS OTHER THAN LOW-EMISSION VEHICLES, ULTRA-LOW-EMISSION VEHICLES, AND ZERO-EMISSION VEHICLES

(grams per mile)^{4,5,6,7,8,9,10}

1 2 3 4 5 6	Vehicle Type	Loaded Vehicle Weight API (lbs.)	Durability Vehicle Basis (mi)	Fuel Type	NMHC + NOx Composite	CO		
						A/C Test	US06 Test	Composite
	PC	0-3750	50,000	Gasoline	0.65	3.0	9.0	3.4
Diesel				1.48	NA	9.0	3.4	
LDT			100,000	Gasoline	0.91	3.7	11.1	4.2
				Diesel	2.07	NA	11.1	4.2
	LDT	0-3750	50,000	Gasoline	0.65	3.0	9.0	3.4
Diesel				1.48	NA	9.0	3.4	
LDT			100,000	Gasoline	0.91	3.7	11.1	4.2
				Diesel	2.07	NA	11.1	4.2
	LDT	3751-5750	50,000	Gasoline	1.02	3.9	11.6	4.4
Diesel				NA	NA	NA	NA	
LDT			100,000	Gasoline	1.37	4.9	14.6	5.5
				Diesel	NA	NA	NA	NA

7 ¹ Abbreviations.

8 PC means passenger car.

9 LDT means light-duty truck.

10 NMHC+NOx means non-methane hydrocarbon plus oxides of nitrogen emissions.

11 CO- means carbon monoxide emissions.

12 A/C means air-conditioning.

13 US06 means the test cycle designed to evaluate emissions during
14 aggressive and microtransient driving.

15 ² *Non-Methane Hydrocarbon Emissions.* For PCs and LDTs certified to the FTP
16 exhaust standards in section 1960.1(f)(2), hydrocarbon emissions shall be
17 measured in accordance with the California Non-Methane Hydrocarbon Test
18 Procedures as last amended May 15, 1990, which is incorporated herein by
19 reference. For PCs and LDTs certified as transitional low-emission vehicles,
20 hydrocarbon emissions shall be measured in accordance with Part B
21 (Determination of Non-Methane Hydrocarbon Mass Emissions by Flame Ionization
22 Detection) of the California Non-Methane Organic Gas Test Procedures as
23 incorporated by reference in section 1960.1(g)(1), note (3). For alcohol-
24 fueled vehicles certifying to these standards, including flexible-fuel
25 vehicles when certifying on methanol or ethanol, Non-Methane Hydrocarbons
26 shall mean Organic Material Non-Methane Hydrocarbon Equivalent.

27 ³ *Composite Standards.* Compliance with the composite standards shall be
28 demonstrated using the calculations set forth in the section 86.164-00, Title

1 40, Code of Federal Regulations, as adopted October 22, 1996, which is
2 incorporated herein by reference.

3 ⁴ *SFTP*. SFTP means the additional test procedure designed to measure
4 emissions during aggressive and microtransient driving, as described in
5 section 86.159-00, Title 40, Code of Federal Regulations, as adopted October
6 22, 1996, over the US06 cycle, and also the test procedure designed to measure
7 urban driving emissions while the vehicle's air conditioning system is
8 operating, as described in section 86.160-00, Title 40, Code of Federal
9 Regulations, as adopted October 22, 1996, over the SC03 cycle. These sections
10 of the Code of Federal Regulations are incorporated herein by reference.

11 ⁵ *Applicability to Alternative Fuel Vehicles*. These SFTP standards do not
12 apply to vehicles certified on fuels other than gasoline and diesel fuel, but
13 the standards do apply to the gasoline and diesel fuel operation of flexible-
14 fuel vehicles and dual-fuel vehicles.

15 ⁶ *Air to Fuel Ratio Requirement*. With the exception of cold-start
16 conditions, warm-up conditions and rapid-throttle motion conditions (tip-in
17 or tip-out conditions), the air to fuel ratio shall not be richer at any
18 time than, for a given engine operating condition (e.g., engine speed,
19 manifold pressure, coolant temperature, air charge temperature, and any other
20 parameters), the leanest air to fuel mixture required to obtain maximum torque
21 (lean best torque), with a tolerance of six percent of the fuel consumption.
22 The Executive Officer may approve a manufacturer's request for approval to use
23 additional enrichment in subsequent testing if the manufacturer demonstrates
24 that additional enrichment is needed to protect the vehicle, occupants,
25 engine, or emission control hardware.

26 ⁷ *A/C-on Specific Calibrations*. A/C-on specific calibrations (e.g. air to
27 fuel ratio, spark timing, and exhaust gas recirculation), may be used which
28 differ from A/C-off calibrations for given engine operating conditions (e.g.,
29 engine speed, manifold pressure, coolant temperature, air charge temperature,
30 and any other parameters). Such calibrations must not unnecessarily reduce
31 the NMHC+NOx emission control effectiveness during A/C-on operation when the
32 vehicle is operated under conditions which may reasonably be expected to be
33 encountered during normal operation and use. If reductions in control system
34 NMHC+NOx effectiveness do occur as a result of such calibrations, the
35 manufacturer shall, in the Application for Certification, specify the
36 circumstances under which such reductions do occur, and the reason for the use
37 of such calibrations resulting in such reductions in control system
38 effectiveness.

39 A/C-on specific open-loop or commanded enrichment air-fuel enrichment
40 strategies (as defined below), which differ from A/C-off open-loop or
41 commanded enrichment air-fuel enrichment strategies, may not be used,
42 with the following exceptions: cold-start and warm-up conditions, or,
43 subject to Executive Officer approval, conditions requiring the protection
44 of the vehicle, occupants, engine, or emission control hardware. Other
45 than these exceptions, such strategies which are invoked based on manifold

1 pressure, engine speed, throttle position, or other engine parameters shall
2 use the same engine parameter criteria for the invoking of this air-fuel
3 enrichment strategy and the same degree of enrichment regardless of whether
4 the A/C is on or off.

5 Open-loop or commanded air-fuel enrichment strategy is defined as
6 enrichment of the air to fuel ratio beyond stoichiometry for the purposes
7 of increasing engine power output and the protection of engine or emissions
8 control hardware. However, closed-loop biasing, defined as small changes
9 in the air-fuel ratio for the purposes of optimizing vehicle emissions or
10 driveability, shall not be considered an open-loop or commanded air-
11 fuel enrichment strategy. In addition, transient air-fuel enrichment
12 strategy (or tip-in and tip-out enrichment), defined as the temporary
13 use of an air-fuel ratio rich of stoichiometry at the beginning or duration
14 of rapid throttle motion, shall not be considered an open-loop or
15 commanded air-fuel enrichment strategy.

16 ⁸ *Lean-On-Cruise Calibration Strategies.* In the Application for
17 Certification, the manufacturer shall state whether any lean-on-cruise
18 strategies are incorporated into the vehicle design. A lean-on-cruise air-
19 fuel calibration strategy is defined as the use of an air-fuel ratio
20 significantly greater than stoichiometry, during non-deceleration conditions
21 at speeds above 40 mph. Lean-on-cruise air-fuel calibration strategies
22 shall not be employed during vehicle operation in normal driving conditions,
23 including A/C-usage, unless at least one of the following conditions is met:

24 1. Such strategies are substantially employed during the FTP or SFTP, or

25 2. Such strategies are demonstrated not to significantly reduce
26 vehicle NMHC+NOx emission control effectiveness over the operating
27 conditions in which they are employed, or

28 3. Such strategies are demonstrated to be necessary to protect the
29 vehicle, occupants, engine, or emission control hardware.

30 If the manufacturer proposes to use a lean-on-cruise calibration
31 strategy, the manufacturer shall specify the circumstances under which such
32 a calibration would be used, and the reason or reasons for the proposed use
33 of such a calibration.

34 The above provisions shall not apply to vehicles powered by lean-burn
35 engines or Diesel-cycle engines. A lean-burn engine is defined as an

1 Otto-cycle engine designed to run at an air-fuel ratio significantly
2 greater than stoichiometry during the large majority of its operation.

3 ⁹ *Phase-In Requirements.* For the purposes of this section 1960.1(q) only,
4 each manufacturer s PC and LDT fleet shall be defined as the total projected
5 number of PCs and LDTs from 0-5750 pounds loaded vehicle weight certified to
6 the FTP exhaust standards of section 1960.1(f)(2) and certified as
7 transitional low-emission vehicles sold in California. As an option, a
8 manufacturer may elect to have its total PC and LDT fleet defined, for the
9 purposes of this section 1960.1(q) only, as the total projected number of the
10 manufacturer s PCs and LDTs, other than zero-emission vehicles, certified and
11 sold in California.

12 a. Manufacturers of PCs and of LDTs, except small volume manufacturers,
13 shall certify a minimum percentage of their PC and LDT fleet according
14 to the following phase-in schedule.

Model Year	Percentage of PC and LDT Fleet
2001	25
2002	50
2003	85
2004 and subsequent	100

21 b. Small volume manufacturers of PCs and LDTs shall certify
22 100% of their PC and LDT fleet in the 2004 and subsequent model years.

23 ¹⁰ *Single-Roll Electric Dynamometer Requirement.* For all vehicles certified
24 to the SFTP standards, a single-roll electric dynamometer or a dynamometer
25 which produces equivalent results, as set forth in the California Exhaust
26 Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger
27 Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by
28 reference in section 1960.1(k), must be used for all types of emission testing
29 to determine compliance with the associated emission standards.

30 _____
31 _____

(r) The Supplemental Federal Test Procedure (SFTP) standards in this section represent the maximum SFTP exhaust emissions at 4,000 miles ± 250 miles or at the mileage determined by the manufacturer for emission-data vehicles in accordance with the California Exhaust Emission Standards and Test Procedures for 1988 Through 2000 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, - as incorporated by reference in section 1960.1(k), and with the California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, - as incorporated by reference in section 1961(d). The SFTP exhaust emission levels from new 2001 and subsequent model low-emission vehicles, ultra-low-emission vehicles and super-ultra-low-emission vehicles in the passenger car and light-duty truck class, and new 2003 and subsequent low-emission vehicles, ultra-low-emission vehicles, and super-ultra-low-emission vehicles in the medium-duty class, shall not exceed:

SFTP EXHAUST EMISSION STANDARDS
FOR LOW-EMISSION VEHICLES, ULTRA-LOW-EMISSION VEHICLES, AND
SUPER-ULTRA-LOW-EMISSION VEHICLES IN THE PASSENGER CAR, LIGHT-
DUTY TRUCK, AND MEDIUM-DUTY VEHICLE CLASSES
 (grams per ^{67,8,9,10,11}mile)¹

Vehicle Type	Loaded Vehicle Weight (lbs.)	US06 Test		A/C Test	
		NMHC + NOx	CO	NMHC + NOx	CO
PC	≤ 4125	0.14	8.0	0.20	2.7
LDT	0-3750	0.14	8.0	0.20	2.7
LDT	3751-5750	0.25	10.5	0.27	3.5
MDV	3751-5750	0.40	10.5	0.31	3.5
MDV	5751-8500	0.60	11.8	0.44	4.0

¹ *Abbreviations and Definitions.* For the purposes of this SFTP standards table only, the following abbreviations and definitions apply:

PC means passenger car.

1 LDT means light-duty truck, defined as any motor vehicle rated at 6,000
2 pounds gross vehicle weight or less, which is designed primarily for
3 purposes of transportation of property or is a derivative of such a
4 vehicle, or is available with special features enabling off-street or off-
5 highway operation and use.

6 MDV means medium-duty truck, defined as any motor vehicle having a
7 manufacturer s gross vehicle weight rating of greater than 6,000 pounds and
8 less than 14,001 pounds, except passenger cars.

9 NMHC+NOx means non-methane hydrocarbon plus oxides of nitrogen emissions.

10 CO means carbon monoxide emissions.

11 US06 means the test cycle designed to evaluate emissions during
12 aggressive and microtransient driving.

13 A/C means air-conditioning.

14 ² For MDVs, Loaded Vehicle Weight shall mean Test Weight, which is the
15 average of the vehicle s curb weight and gross vehicle weight.

16 ³ Vehicles with a gross vehicle weight rating over 8,500 pounds are exempted
17 from the requirements of this subsection.

18 ⁴ *Non-Methane Hydrocarbon Emissions.* Hydrocarbon emissions shall be measured
19 in accordance with Part B (Determination of Non-Methane Hydrocarbon Mass
20 Emissions by Flame Ionization Detection) of the California Non-Methane
21 Organic Gas Test Procedures as incorporated by reference in section
22 1960.1(g)(1), note (3). For alcohol-fueled vehicles certifying to these
23 standards, including flexible-fuel vehicles when certifying on methanol or
24 ethanol, Non-Methane Hydrocarbons shall mean Organic Material Non-Methane
25 Hydrocarbon Equivalent.

26 ⁵ *A/C-on Specific Calibrations.* A/C-on specific calibrations (e.g. air to
27 fuel ratio, spark timing, and exhaust gas recirculation), may be used which
28 differ from A/C-off calibrations for given engine operating conditions (e.g.,
29 engine speed, manifold pressure, coolant temperature, air charge temperature,
30 and any other parameters). Such calibrations must not unnecessarily reduce
31 the NMHC+NOx emission control effectiveness during A/C-on operation when the
32 vehicle is operated under conditions which may reasonably be expected to be
33 encountered during normal operation and use. If reductions in control system
34 NMHC+NOx effectiveness do occur as a result of such calibrations, the
35 manufacturer shall, in the Application for Certification, specify the
36 circumstances under which such reductions do occur, and the reason for the use
37 of such calibrations resulting in such reductions in control system
38 effectiveness.

39 A/C-on specific open-loop or commanded enrichment air-fuel enrichment
40 strategies (as defined below), which differ from A/C-off open-loop or
41 commanded enrichment air-fuel enrichment strategies, may not be used,
42 with the following exceptions: cold-start and warm-up conditions, or,
43 subject to Executive Officer approval, conditions requiring the protection
44 of the vehicle, occupants, engine, or emission control hardware. Other
45 than these exceptions, such strategies which are invoked based on manifold

1 pressure, engine speed, throttle position, or other engine parameters shall
2 use the same engine parameter criteria for the invoking of this air-fuel
3 enrichment strategy and the same degree of enrichment regardless of whether
4 the A/C is on or off.

5 Open-loop or commanded air-fuel enrichment strategy is defined as
6 enrichment of the air to fuel ratio beyond stoichiometry for the purposes
7 of increasing engine power output and the protection of engine or emissions
8 control hardware. However, closed-loop biasing, defined as small changes
9 in the air-fuel ratio for the purposes of optimizing vehicle emissions or
10 driveability, shall not be considered an open-loop or commanded air-
11 fuel enrichment strategy. In addition, transient air-fuel enrichment
12 strategy (or tip-in and tip-out enrichment), defined as the temporary
13 use of an air-fuel ratio rich of stoichiometry at the beginning or duration
14 of rapid throttle motion, shall not be considered an open-loop or
15 commanded air-fuel enrichment strategy.

16 ⁶ *SFTP*. SFTP means the additional test procedure designed to measure
17 emissions during aggressive and microtransient driving, as described in
18 section 86.159-00, Title 40, Code of Federal Regulations, as adopted October
19 22, 1996, over the US06 cycle, and also the test procedure designed to measure
20 urban driving emissions while the vehicle's air conditioning system is
21 operating, as described in section 86.160-00, Title 40, Code of Federal
22 Regulations, as adopted October 22, 1996, over the SC03 cycle. These sections
23 of the Code of Federal Regulations are incorporated herein by reference.

24 ⁷ *Applicability to Alternative Fuel Vehicles*. These SFTP standards do not
25 apply to vehicles certified on fuels other than gasoline and diesel fuel, but
26 the standards do apply to the gasoline and diesel fuel operation of flexible-
27 fuel vehicles and dual-fuel vehicles.

28 ⁸ *Air to Fuel Ratio Requirement*. With the exception of cold-start
29 conditions, warm-up conditions and rapid-throttle motion conditions (tip-in
30 or tip-out conditions), the air to fuel ratio shall not be richer at any
31 time than, for a given engine operating condition (e.g., engine speed,
32 manifold pressure, coolant temperature, air charge temperature, and any other
33 parameters), the leanest air to fuel mixture required to obtain maximum torque
34 (lean best torque), with a tolerance of six percent of the fuel consumption.
35 The Executive Officer may approve a manufacturer's request for approval to use
36 additional enrichment in subsequent testing if the manufacturer demonstrates
37 that additional enrichment is needed to protect the vehicle, occupants,
38 engine, or emission control hardware.

39 ⁹ *Lean-On-Cruise Calibration Strategies*. In the Application for
40 Certification, the manufacturer shall state whether any lean-on-cruise
41 strategies are incorporated into the vehicle design. A lean-on-cruise air-
42 fuel calibration strategy is defined as the use of an air-fuel ratio
43 significantly greater than stoichiometry, during non-deceleration conditions
44 at speeds above 40 mph. Lean-on-cruise air-fuel calibration strategies

1 shall not be employed during vehicle operation in normal driving conditions,
2 including A/C-usage, unless at least one of the following conditions is met:

3 1. Such strategies are substantially employed during the FTP or SFTP,
4 or

5 2. Such strategies are demonstrated not to significantly reduce
6 vehicle NMHC+NOx emission control effectiveness over the operating
7 conditions in which they are employed, or

8 3. Such strategies are demonstrated to be necessary to protect the vehicle,
9 occupants, engine, or emission control hardware.

10 If the manufacturer proposes to use a lean-on-cruise calibration
11 strategy, the manufacturer shall specify the circumstances under which such
12 a calibration would be used, and the reason or reasons for the proposed use
13 of such a calibration.

14 The above provisions shall not apply to vehicles powered by lean-burn
15 engines or Diesel-cycle engines. A lean-burn engine is defined as an
16 Otto-cycle engine designed to run at an air-fuel ratio significantly
17 greater than stoichiometry during the large majority of its operation.

18 ¹⁰ *Phase-In Requirements.* For the purposes of this 1960.1(r) section only,
19 each manufacturer s PC and LDT fleet shall be defined as the total projected
20 number of low-emission and ultra-low-emission PCs and LDTs from 0-5750 pounds
21 loaded vehicle weight sold in California. Each manufacturer s MDV fleet shall
22 be defined as the total projected number of low-emission, ultra-low-emission,
23 and super-ultra-low-emission MDVs less than 8501 pounds gross vehicle weight
24 rating sold in California.

25 a. Manufacturers of PCs, LDTs, and MDVs, except small volume
26 manufacturers, shall certify a minimum percentage of their PC and LDT
27 fleet, and a minimum percentage of their MDV fleet, according to the
28 following phase-in schedule.

Model Year	Percentage	
	PC, LDT	MDV
2001	25	NA

2002	50	NA
2003	85	25
2004	100	50
2005 and subsequent	100	100

b. Manufacturers may use an Alternative or Equivalent Phase-in Schedule to comply with the phase-in requirements. An Alternative Phase-in is one that achieves at least equivalent emission reductions by the end of the last model year of the scheduled phase-in. Model-year emission reductions shall be calculated by multiplying the percent of vehicles (based on the manufacturer's projected California sales volume of the applicable vehicle fleet) meeting the new requirements per model year by the number of model years implemented prior to and including the last model year of the scheduled phase-in. The cumulative total is the summation of the model-year emission reductions (e.g., a four model-year 25/50/85/100 percent phase-in schedule would be calculated as: $(25\% \times 4 \text{ years}) + (50\% \times 3 \text{ years}) + (85\% \times 2 \text{ years}) + (100\% \times 1 \text{ year}) = 520$). Any alternative phase-in that results in an equal or larger cumulative total than the required cumulative total by the end of the last model year of the scheduled phase-in shall be considered acceptable by the Executive Officer under the following conditions: 1) all vehicles subject to the phase-in shall comply with the respective requirements in the last model year of the required phase-in schedule and 2) if a manufacturer uses the optional phase-in percentage determination in section 1960.1(q) note (9), the cumulative total of model-year emission reductions as determined only for PCs and LDTs certified to this section 1960.1(r) must also be equal to or larger than the required cumulative total by end of the 2004 model year. Manufacturers shall be allowed to include vehicles introduced before the first model year of the scheduled phase-in (e.g., in the previous example, 10 percent introduced one year before the scheduled phase-in begins would be calculated as: $(10\% \times 5 \text{ years})$ and added to the cumulative total).

c. Small volume manufacturers of PCs, LDTs, and MDVs shall certify 100% of their PC and LDT fleet in 2004 and subsequent model years, and 100% of their MDV fleet in 2005 and subsequent model years.

¹¹ *Single-Roll Electric Dynamometer Requirement.* For all vehicles certified to the SFTP standards, a single-roll electric dynamometer or a dynamometer which produces equivalent results, as set forth in the California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles as incorporated by

1 reference in section 1960.1(k), must be used for all types of emission testing
2 to determine compliance with the associated emission standards.

3 _____
4 _____

5 NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101,
6 43104, and 43105, Health and Safety Code. Reference: Sections 39002,
7 39003, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5,
8 43102, 43103, 43104, 43105, 43106, 43107, and 43204 - 43205.5, Health
9 and Safety Code.

1 **1960.5. Certification of 1983 and Subsequent Model-Year**
2 **Federally Certified Light-Duty Motor Vehicles for Sale in**
3 **California.**

4 (a) The exhaust emissions from new 1983 and subsequent
5 model year federally certified passenger cars and light-duty
6 trucks, subject to registration and sold and registered in this
7 state pursuant to section 43102(b) of the California Health and
8 Safety Code, shall not exceed the applicable federal emission
9 standards as determined under applicable federal test procedures.

10 (b) With respect to any new vehicle required to comply with
11 the standards set forth in paragraph (a), the manufacturer's
12 written maintenance instructions for in-use vehicles shall not
13 require scheduled maintenance more frequently than or beyond the
14 scope of maintenance permitted under the test procedures
15 referenced in paragraph (a). Any failure to perform scheduled
16 maintenance shall not excuse an emissions violation unless the
17 failure is related to or causes the violation.

18 (c) The standards and procedures for certifying in
19 California 1983 through 2002 model-year federally-certified
20 light-duty motor vehicles are set forth in Guidelines for
21 Certification of 1983 through 2002 Model-Year Federally Certified
22 Light-Duty Motor Vehicles for Sale in California,- adopted July
23 20, 1982, as last amended July 30, 2002, which is incorporated
24 herein by reference. The standards and procedures for certifying
25 in California 2003 and subsequent model-year federally-certified
26 light-duty motor vehicles are set forth in Guidelines for
27 Certification of 2003 and Subsequent Model-Year Federally
28 Certified Light-Duty Motor Vehicles for Sale in California,-
29 adopted July 30, 2002, which is incorporated herein by reference.

30 NOTE: Authority cited: Sections 39601, 43100 and 43102, Health and
31 Safety Code. Reference: Section 43102, Health and Safety Code.

1 **1961. Exhaust Emission Standards and Test Procedures - 2004 and**
2 **Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-**
3 **Duty Vehicles.**

4 *Introduction.* This section 1961 contains the California
5 LEV II- exhaust emission standards for 2004 and subsequent model
6 passenger cars, light-duty trucks and medium-duty vehicles. A
7 manufacturer must demonstrate compliance with the exhaust
8 standards in section 1961(a) applicable to specific test groups,
9 and with the composite phase-in requirements in section 1961(b)
10 applicable to the manufacturer's entire fleet. Section 1961(b)
11 also includes the manufacturer's fleet-wide composite phase-in
12 requirements for the 2001 - 2003 model years.

13 Prior to the 2004 model year, a manufacturer that produces
14 vehicles that meet the standards in section 1961(a) has the
15 option of certifying the vehicles to those standards, in which
16 case the vehicles will be treated as LEV II vehicles for purposes
17 of the fleet-wide phase-in requirements. Similarly, 2004 - 2006
18 model-year vehicles may be certified to the LEV I- exhaust
19 emission standards in section 1960.1(g)(1) and (h)(2), in which
20 case the vehicles will be treated as LEV I vehicles for purposes
21 of the fleet-wide phase-in requirements.

22 A manufacturer has the option of certifying engines used in
23 incomplete and diesel medium-duty vehicles with a gross vehicle
24 weight rating of greater than 8,500 lbs. to the heavy-duty engine
25 standards and test procedures set forth in title 13, CCR,
26 sections 1956.8(c), (g) and (h).

27 (a) *Exhaust Emission Standards.*

28 (1) *LEV II- Exhaust Standards.* The following standards
29 represent the maximum exhaust emissions for the intermediate and
30 full useful life from new 2004 and subsequent model-year LEV II-
31 LEVs, ULEVs, and SULEVs, including fuel-flexible, bi-fuel and
32 dual fuel vehicles when operating on the gaseous or alcohol fuel
33 they are designed to use:

**LEV II Exhaust Mass Emission Standards for New 2004 and
Subsequent Model
LEVs, ULEVs, and SULEVs
in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle
Classes**

<i>Vehicle Type</i>	<i>Durability Vehicle Basis (mi)</i>	<i>Vehicle Emission Category</i>	<i>NMOG (g/mi)</i>	<i>Carbon Monoxide (g/mi)</i>	<i>Oxides of Nitrogen (g/mi)</i>	<i>Formaldehyde (mg/mi)</i>	<i>Particulates (g/mi)</i>	
All PCs; LDTs 8500 lbs. GVW or less Vehicles in this category are tested at their loaded vehicle weight	50,000	LEV	0.075	3.4	0.05	15	n/a	
		LEV, Option 1	0.075	3.4	0.07	15	n/a	
		ULEV	0.040	1.7	0.05	8	n/a	
	120,000	LEV	0.090	4.2	0.07	18	0.01	
		LEV, Option 1	0.090	4.2	0.10	18	0.01	
		ULEV	0.055	2.1	0.07	11	0.01	
		SULEV	0.010	1.0	0.02	4	0.01	
		150,000 (Optional)	LEV	0.090	4.2	0.07	18	0.01
			LEV, Option 1	0.090	4.2	0.10	18	0.01
			ULEV	0.055	2.1	0.07	11	0.01
	SULEV		0.010	1.0	0.02	4	0.01	
	MDVs 8501 - 10,000 lbs. GVW Vehicles in this category are tested at their adjusted loaded vehicle weight	120,000	LEV	0.195	6.4	0.2	32	0.12
ULEV			0.143	6.4	0.2	16	0.06	
SULEV			0.100	3.2	0.1	8	0.06	
150,000 (Optional)		LEV	0.195	6.4	0.2	32	0.12	
		ULEV	0.143	6.4	0.2	16	0.06	
		SULEV	0.100	3.2	0.1	8	0.06	

MDVs 10,001-14,000 lbs. GVW Vehicles in this category are tested at their adjusted loaded vehicle weight	120,000	LEV	0.230	7.3	0.4	40	0.12
		ULEV	0.167	7.3	0.4	21	0.06
		SULEV	0.117	3.7	0.2	10	0.06
	150,000 (Optional)	LEV	0.230	7.3	0.4	40	0.12
		ULEV	0.167	7.3	0.4	21	0.06
		SULEV	0.117	3.7	0.2	10	0.06

(2) *Reactivity Adjustment in Determining Compliance with the NMOG Standard*

(A) The NMOG emission results from all TLEVs, LEVs, ULEVs and SULEVs certifying on a fuel other than conventional gasoline shall be numerically adjusted to establish an NMOG exhaust mass emission value equivalent. The manufacturer shall multiply measured NMOG exhaust emission results by the appropriate reactivity adjustment factor set forth in section 1961(a)(2)(B) or established in accordance with the test procedures incorporated by reference in section 1961(d). The reactivity adjustment factor represents the ratio of the NMOG specific reactivity of a low-emission vehicle designed to operate on a fuel other than conventional gasoline compared to the NMOG baseline specific reactivity of vehicles in the same vehicle emission category operated on conventional gasoline.

(B) The following reactivity adjustment factors apply:

	<i>Light-Duty Vehicles 0-6000 lbs. GVW</i>			<i>Medium-Duty Vehicles 6001 lbs. - 14,000 lbs. GVW</i>	
	<i>TLEV</i>	<i>LEV</i>	<i>ULEV</i>	<i>LEV</i>	<i>ULEV</i>
<i>Fuel</i>	<i>Baseline Specific Reactivity (grams ozone / gram NMOG)</i>				
Conventional Gasoline	3.42	3.13	3.13	3.13	3.13
	Reactivity Adjustment Factors				
RFG (through the 2003 model year)	0.98	0.94	0.94	0.94	0.94
M85	0.41	0.41	0.41	0.41	0.41

Natural Gas	1.0	0.43	0.43	0.43	0.43
LPG	1.0	0.50	0.50	0.50	0.50
Methane Reactivity Adjustment Factors					
Natural Gas	0.0043	0.0047	0.0047	0.0047	0.0047

(3) *NMOG Standards for Bi-Fuel, Fuel-Flexible and Dual-Fuel Vehicles Operating on Gasoline.* For fuel-flexible, bi-fuel, and dual-fuel PCs, LDTs and MDVs, compliance with the NMOG exhaust mass emission standards shall be based on exhaust emission tests both when the vehicle is operated on the gaseous or alcohol fuel it is designed to use, and when the vehicle is operated on gasoline. A manufacturer must demonstrate compliance with the applicable exhaust mass emission standards for NMOG, CO, NOx and formaldehyde set forth in the table in section 1961(a)(1) when certifying the vehicle for operation on the gaseous or alcohol fuel.

The following standards represent the maximum NMOG emissions when the vehicle is operating on gasoline. A manufacturer shall not apply a reactivity adjustment factor to the exhaust NMOG mass emission result when operating on gasoline. A manufacturer may measure NMHC in lieu of NMOG when fuel-flexible, bi-fuel and dual-fuel vehicles are operated on gasoline, in accordance with the test procedures incorporated by reference in section 1961(d). Testing at 50 F is not required for fuel-flexible, bi-fuel and dual-fuel vehicles when operating on gasoline. The applicable CO, NOx and formaldehyde standards are set forth in section 1961(a)(1).

LEV II NMOG Standards for Bi-Fuel, Fuel-Flexible and Dual-Fuel Vehicles Operating on Gasoline (g/mi)			
<i>Vehicle Type</i>	<i>Vehicle Emission Category</i>	<i>Durability Vehicle Basis</i>	
		<i>50,000 mi</i>	<i>120,000 mi</i>
All PCs; LDTs, 0-8500 lbs. GVW	LEV	0.125	0.156

	ULEV	0.075	0.090
	SULEV	0.010	0.040
1	MDVs, 8501-10,000 lbs. GVW	LEV	n/a
2		ULEV	n/a
		SULEV	n/a
3	MDVs, 10,001-14,000 lbs. GVW	LEV	n/a
4		ULEV	n/a
		SULEV	n/a

5 (4) *50°F Exhaust Emission Standards.* All light- and
6 medium-duty LEVs, ULEVs and SULEVs must demonstrate compliance
7 with the following exhaust emission standards for NMOG and
8 formaldehyde (HCHO) measured on the FTP (40 CFR, Part 86, Subpart
9 B) conducted at a nominal test temperature of 50°F, as modified
10 by Part II, Section C of the California Exhaust Emission
11 Standards and Test Procedures for 2001 and Subsequent Model
12 Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles—
13 incorporated by reference in section 1961(d). The NMOG mass
14 emission result shall be multiplied by the applicable reactivity
15 adjustment factor, if any, prior to comparing to the applicable
16 adjusted 50,000 mile certification standards set forth below. A
17 manufacturer may demonstrate compliance with the NMOG and HCHO
18 certification standards contained in this subparagraph by
19 measuring NMHC exhaust emissions or issuing a statement of
20 compliance for HCHO in accordance with Section D.1, subparagraph
21 (p) and Section G.3.1.2, respectively, of the California Exhaust
22 Emission Standards and Test Procedures for 2001 and Subsequent
23 Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles—
24 incorporated by reference in section 1961(d). Emissions of CO
25 and NOx measured at 50°F shall not exceed the standards set
26 forth in §1961(a)(1) applicable to vehicles of the same emission
27 category and vehicle type subject to a cold soak and emission
28 test at 68°F to 86°F. Natural gas and diesel-fueled vehicles are
29 exempt from the 50°F test requirements.

Vehicle Weight Class	Vehicle Emission Category (g/mi)					
	LEV		ULEV		SULEV	
	NMOG	HCHO	NMOG	HCHO	NMOG	HCHO
PCs; LDTs 0-8500 lbs. GVW	0.150	0.030	0.080	0.016	0.020	0.008
MDVs 8501-10,000 lbs. GVW	0.390	0.064	0.286	0.032	0.200	0.016
MDVs 10,001-14,000 lbs. GVW	0.460	0.080	0.334	0.042	0.234	0.020

(5) *Cold CO Standard.* The following standards represent the 50,000 mile cold temperature exhaust carbon monoxide emission levels from new 2001 and subsequent model-year passenger cars, light-duty trucks, and medium-duty vehicles:

**2001 AND SUBSEQUENT MODEL-YEAR COLD TEMPERATURE
CARBON MONOXIDE EXHAUST EMISSIONS STANDARDS FOR PASSENGER
CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES**
(grams per mile)

Vehicle Type	Carbon Monoxide
All PCs, LDTs 0-3750 lbs. LVW;	10.0
LDTs, 3751 lbs. LVW - 8500 lbs. GVW; LEV I and Tier 1 MDVs 8500 lbs. GVW and less	12.5

These standards are applicable to vehicles tested at a nominal temperature of 20 ± 7 in accordance with 40 CFR Part 86 Subpart C, as amended by the California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles—incorporated by reference in section 1961(d). Natural gas, diesel-fueled and zero-emission vehicles are exempt from these standards.

1 (6) *Highway NOx Standard.* The maximum emissions of oxides
2 of nitrogen measured on the federal Highway Fuel Economy Test
3 (HWFET; 40 CFR 600 Subpart B, which is incorporated herein by
4 reference) shall not be greater than 1.33 times the applicable PC
5 and LDT standards or 2.0 times the applicable MDV standards set
6 forth in section 1961(a)(1). Both the projected emissions and
7 the HWFET standard shall be rounded in accordance with ASTM E29-
8 67 to the nearest 0.1 g/mi (or 0.01 g/mi for vehicles certified
9 to the 0.05 or 0.02 g/mi NOx standards) before being compared.

10 (7) *Supplemental Federal Test Procedure (SFTP) Off-Cycle*
11 *Emission Standards.* The SFTP exhaust emission levels from new
12 2004 and subsequent model LEVs, ULEVs, and SULEVs shall not
13 exceed the standards set forth in section 1960.1(r).

14 (8) *Requirements for Vehicles Certified to the Optional*
15 *150,000 Mile Standards.*

16 (A) *Requirement to Generate Additional Fleet Average*
17 *NMOG Credit.* A vehicle that is certified to the 150,000 mile
18 standards in section 1961(a) shall generate additional NMOG fleet
19 average credit as set forth in 1961(b)(1) or additional vehicle
20 equivalent credits as set forth in 1961(b)(2) provided that the
21 manufacturer extends the warranty on high cost parts to 8 years
22 or 100,000 miles, whichever occurs first, and agrees to extend
23 the limit on high mileage in-use testing to 112,500 miles.

24 (B) *Requirement to Generate a Partial ZEV Allowance.*
25 A vehicle that is certified to the 150,000 mile SULEV standards
26 shall also generate a partial ZEV allocation according to the
27 criteria set forth in section C.3 of the California Exhaust
28 Emission Standards and Test Procedures for 2005 and Subsequent
29 Model Zero-Emission Vehicles, and 2001 and Subsequent Model
30 Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck
31 and Medium-Duty Vehicle Classes, - incorporated by reference in
32 section 1962.

33 (9) *Optional LEV II NOx Standard.* A manufacturer may
34 certify up to 4% of its light-duty truck fleet from 3751 lbs. LVW

1 - 8500 lbs. GVW with a maximum base payload of 2500 lbs. or more
 2 to the LEV, option 1, standard set forth in 1961(a)(1) based on
 3 projected sales of trucks in the LDT2 category. Passenger cars
 4 and light-duty trucks 0-3750 lbs. LVW are not eligible for this
 5 option.

6 (10) *Intermediate In-Use Compliance Standards.* For test
 7 groups certified prior to the 2007 model year, the following
 8 intermediate in-use compliance standards shall apply for the
 9 first two model years the test group is certified to the new
 10 standard. For SULEVs certified prior to the 2004 model year, the
 11 following intermediate in-use compliance SULEV standards shall
 12 apply through the 2006 model year.

Emission Category	Durability Vehicle Basis	LEV II PCs and LDTs		LEV II MDVs 8500 - 10,000 lbs. GVW
		NMOG	NOx	NOx
LEV/ULEV	50,000	n/a	0.07	n/a
	120,000	n/a	0.10	0.3
	150,000	n/a	0.10	0.3
LEV, Option 1	50,000	n/a	0.10	n/a
	120,000	n/a	0.14	n/a
	150,000	n/a	0.14	n/a
SULEV	120,000	0.020	0.03	0.15
	150,000	0.020	0.03	0.15

18 (11) *NMOG Credit for Vehicles with Zero-Evaporative*
 19 *Emissions.* In determining compliance of a vehicle with the
 20 applicable exhaust NMOG standard, a gram per mile NMOG factor, to
 21 be determined by the Executive Officer based on available data,
 22 shall be subtracted from the reactivity-adjusted NMOG exhaust
 23 emission results for any vehicle that has been certified to the
 24 zero- evaporative emission standard set forth in title 13, CCR,
 25 section 1976(b)(1)(E). This credit shall not apply to a SULEV
 26 that generates a partial ZEV allowance.

1 (12) *NMOG Credit for Direct Ozone Reduction Technology.* A
2 manufacturer that certifies vehicles equipped with direct ozone
3 reduction technologies shall be eligible to receive NMOG credits
4 that can be applied to the NMOG exhaust emissions of the vehicle
5 when determining compliance with the standard. In order to
6 receive credit, the manufacturer must submit the following
7 information for each vehicle model, including, but not limited
8 to:

9 (A) a demonstration of the airflow rate through the
10 direct ozone reduction device and the ozone-reducing efficiency
11 of the device over the range of speeds encountered in the Unified
12 Cycle Driving Schedule;

13 (B) an evaluation of the durability of the device for
14 the full useful life of the vehicle; and

15 (C) a description of the on-board diagnostic strategy
16 for monitoring the performance of the device in-use.

17 Using the above information, the Executive Officer shall
18 determine the value of the NMOG credit based on the calculated
19 change in the one-hour peak ozone level using an approved airshed
20 model.

21 (13) *NOx Credits for Pre-2004 MDVs Certified to the LEV I*
22 *LEV or ULEV Standards.* Prior to the 2004 model year, a
23 manufacturer may earn a 0.02 g/mi per vehicle NOx credit for MDVs
24 between 6,000-8500 lbs. GVW certified to the LEV I LEV or ULEV
25 standards for PCs and LDTs set forth in section 1960.1(g)(1).
26 The manufacturer may apply the credit on a per vehicle basis to
27 the NOx emissions of LDTs between 6,000-8500 lbs. GVW certified
28 to the PC/LDT LEV or ULEV standards in section 1961(a)(1) for the
29 2004 through 2008 model years.

30 (14) *When a Federally-Certified Vehicle Model is Required in*
31 *California.*

1 (A) *General Requirement.* Whenever a manufacturer
2 federally-certifies a 2004 or subsequent model-year passenger
3 car, light-duty truck or medium-duty vehicle model to the
4 standards for a particular emissions bin that are more stringent
5 than the standards for an applicable California emission
6 category, the equivalent California model may only be certified
7 to (i) the California standards for a vehicle emissions category
8 that are at least as stringent as the standards for the
9 corresponding federal emissions bin, or (ii) the exhaust emission
10 standards to which the federal model is certified. However,
11 where the federal exhaust emission standards for the particular
12 emissions bin and the California standards for a vehicle
13 emissions category are equally stringent, the California model
14 may only be certified to either the California standards for that
15 vehicle emissions category or more stringent California
16 standards. The federal emission bins are those contained in
17 Tables S04-1 and S04-2 of 40 CFR ú86.1811-04(c) as adopted
18 February 10, 2000. The criteria for applying this requirement
19 are set forth in Part I. Section H.1 of the California Exhaust
20 Emission Standards and Test Procedures for 2001 and Subsequent
21 Model Passenger Cars, Light-Duty Trucks and Medium-Duty
22 Vehicles,- as incorporated by reference in section 1961(d).

23 (B) *Exception for clean fuel fleet vehicles.* Section
24 1961(a)(14)(A) does not apply in the case of a federally-
25 certified vehicle model that is only marketed to fleet operators
26 for applications that are subject to clean fuel fleet
27 requirements established pursuant to section 246 of the federal
28 Clean Air Act (42 U.S.C. sec. 7586). In addition, the Executive
29 Officer shall exclude from the requirement a federally-certified
30 vehicle model where the manufacturer demonstrates to the
31 Executive Officer's reasonable satisfaction that the model will
32 primarily be sold or leased to clean fuel fleet operators for
33 such applications, and that other sales or leases of the model
34 will be incidental to marketing to those clean fuel fleet
35 operators.

36 (C) *Opt-in for 2003 or prior model year vehicles.* A
37 manufacturer may certify a passenger car, light-duty truck or

1 medium-duty vehicle to federal exhaust emission standards
 2 pursuant to section 1961(a)(14)(A) prior to the 2004 model year.

3 (15) *Emission Standard for a Fuel-Fired Heater.* Whenever a
 4 manufacturer elects to utilize an on-board fuel-fired heater on
 5 any passenger car, light-duty truck or medium-duty vehicle, the
 6 fuel-fired heater must meet LEV II ULEV standards for passenger
 7 cars and light-duty trucks less than 8,500 pounds GVW as set
 8 forth in section 1961(a)(1). On-board fuel-fired heaters may not
 9 be operable at ambient temperatures above 0

10 (b) *Emission Standards Phase-In Requirements for*
 11 *Manufacturers.*

12 (1) *Fleet Average NMOG Requirements for Passenger Cars and*
 13 *Light-Duty Trucks.*

14 (A) The fleet average non-methane organic gas exhaust
 15 mass emission values from the passenger cars and light-duty
 16 trucks certified to the Tier 1, LEV I and LEV II standards that
 17 are produced and delivered for sale in California each model year
 18 by a manufacturer other than a small volume manufacturer or an
 19 independent low volume manufacturer shall not exceed:

FLEET AVERAGE NON-METHANE ORGANIC GAS EXHAUST MASS EMISSION REQUIREMENTS FOR LIGHT-DUTY VEHICLE WEIGHT CLASSES (50,000 mile Durability Vehicle Basis)		
<i>Model Year</i>	<i>Fleet Average NMOG (grams per mile)</i>	
	<i>All PCs; LDTs 0-3750 lbs. LVW</i>	<i>LDTs 3751 lbs. LVW - 8500 lbs. GVW</i>
2001	0.070	0.098
2002	0.068	0.095
2003	0.062	0.093
2004	0.053	0.085
2005	0.049	0.076
2006	0.046	0.062

2007	0.043	0.055
2008	0.040	0.050
2009	0.038	0.047
2010+	0.035	0.043

(B) Calculation of Fleet Average NMOG Value.

1. Basic Calculation.

a. Each manufacturer's PC and LDT1 fleet average NMOG value for the total number of PCs and LDT1s produced and delivered for sale in California shall be calculated as follows:

$$\frac{(\text{[Number of vehicles in a test group x applicable emission standard]} + \text{[Number of hybrid electric vehicles in a test group x HEV NMOG factor]})}{\text{Total Number of Vehicles Produced, Including ZEVs and HEVs}}$$

b. Each manufacturer's LDT2 fleet average NMOG value for the total number of LDT2s produced and delivered for sale in California shall be calculated as follows:

$$\frac{(\text{[Number of vehicles in a test group x applicable emission standard]} + \text{[Number of hybrid electric vehicles in a test group x HEV NMOG factor]})}{\text{Total Number of Vehicles Produced, Including ZEVs and HEVs}}$$

c. The applicable emission standards to be used in the above equations are as follows:

Model Year	Emission Category	Emission Standard Value	
		All PCs; LDTs 0-3750 lbs. LVW	LDTs 3751-5750 lbs. LVW
2001 and subsequent (1960.5 AB 965 vehicles only)	All	Federal Emission Standard to which Vehicle is Certified	Federal Emission Standard to which Vehicle is Certified
2001 - 2003 (1960.1(f)(2))	Tier 1	0.25	0.32
2001 - 2006 model year vehicles certified to the LEV I standards in 1960.1(g)(1) (For LEVs, 2001 - 2003 model years only)	TLEVs	0.125	0.160
	LEVs	0.075	0.100
	ULEVs	0.040	0.050
2004 and subsequent model year vehicles certified to the LEV II standards in 1961(a)(1)	LEVs	0.075	0.075
	ULEVs	0.040	0.040
	SULEVs	0.01	0.01
2004 and subsequent model year vehicles certified to the optional 150,000 mile LEV II standards for PCs and LDTs	LEVs	0.06	0.06
	ULEVs	0.03	0.03
	SULEVs	0.0085	0.0085

in HEV NMOG Factor. The HEV NMOG factor for light-duty vehicles is calculated as follows:

$$\text{LEV HEV Contribution Factor} = 0.075 - [(\text{Zero-emission VMT Factor}) \times 0.035]$$

$$\text{ULEV HEV Contribution Factor} = 0.040 - [(\text{Zero-emission VMT Factor}) \times 0.030]$$

where Zero-emission VMT Factor for HEVs is determined in accordance with section 1962.

1 3. *Federally-Certified Vehicles.* A vehicle certified
2 to the federal standards for a federal exhaust emissions bin in
3 accordance with Section H.1 of the California Exhaust Emission
4 Standards and Test Procedures for 2001 and Subsequent Model
5 Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,- as
6 incorporated by reference in section 1961(d), shall use the
7 corresponding intermediate useful life NMOG standard to which the
8 vehicle is deemed certified in the fleet average calculation.

9 (C) *Requirements for Small Volume Manufacturers.*

10 1. In 2001 through 2006 model years, a small volume
11 manufacturer shall not exceed a fleet average NMOG value of 0.075
12 g/mi for PCs and LDTs from 0-3750 lbs. LVW or 0.100 g/mi for LDTs
13 from 3751-5750 lbs. LVW calculated in accordance with section
14 1961(b)(1)(B). In 2007 and subsequent model years, a small
15 volume manufacturer shall not exceed a fleet average NMOG value
16 of 0.075 for PCs and LDTs from 0-3750 lbs. LVW or 0.075 for LDTs
17 from 3751 lbs. LVW - 8500 lbs. GVW calculated in accordance with
18 section 1961(b)(1)(B).

19 2. If a manufacturer's average California sales
20 exceed 4500 units of new PCs, LDTs, MDVs and heavy duty engines
21 based on the average number of vehicles sold for the three
22 previous consecutive model years, the manufacturer shall no
23 longer be treated as a small volume manufacturer and shall comply
24 with the fleet average requirements applicable to larger
25 manufacturers as specified in section 1961(b)(1) beginning with
26 the fourth model year after the last of the three consecutive
27 model years.

28 3. If a manufacturer's average California sales fall
29 below 4500 units of new PCs, LDTs, MDVs and heavy duty engines
30 based on the average number of vehicles sold for the three
31 previous consecutive model years, the manufacturer shall be
32 treated as a small volume manufacturer and shall be subject to
33 the requirements for small volume manufacturers beginning with
34 the next model year.

1 (D) *Phase-in Requirements for Independent Low Volume*
2 *Manufacturers.* In 2001 through 2006 model years, an independent
3 low volume manufacturer shall not exceed a fleet average NMOG
4 value of 0.075 g/mi for PCs and LDTs from 0-3750 lbs. LVW or
5 0.100 g/mi for LDTs from 3751-5750 lbs. LVW calculated in
6 accordance with section 1961(b)(1)(B). In 2007 and subsequent
7 model years, an independent low volume manufacturer shall not
8 exceed a fleet average NMOG value of 0.060 for PCs and LDTs from
9 0-3750 lbs. LVW or 0.065 g/mi for LDTs from 3751 lbs. LVW - 8500
10 lbs. GVW calculated in accordance with section 1961(b)(1)(B).

11 (E) *Treatment of ZEVs.* ZEVs classified as LDTs (>3750
12 lbs. LVW) that have been counted toward the ZEV requirement for
13 PCs and LDTs (0-3750 lbs. LVW) as specified in section 1962 shall
14 be included as LDTs in the calculation of a fleet average NMOG
15 value.

16 (2) *LEV II Phase-In Requirement for PCs and LDTs.*
17 Beginning in the 2004 model year, a manufacturer, except a small
18 volume manufacturer or an independent low volume manufacturer,
19 shall certify a percentage of its PC and LDT fleet to the LEV II
20 standards in section 1961(a) according to the following phase in
21 schedule:

<i>Model Year</i>	<i>PC/LDT1 (%)</i>	<i>LDT2 (%)</i>
2004	25	25
2005	50	50
2006	75	75
2007	100	100

In determining compliance with the phase-in schedule, the fleet shall consist of LEV I and LEV II PCs and LDT1s for the PC/LDT1 calculation, and LEV I and LEV II LDT2s for the LDT2 calculation. LEV I MDVs are not counted in the calculation until they are certified as LEV II LDT2s.

A manufacturer may use an alternative phase-in schedule to comply with these phase-in requirements as long as equivalent NOx emission reductions are achieved by the 2007 model year from each of the two categories -- PC/LDT1 and LDT2. Model year emission reductions shall be calculated by multiplying the percent of either PC/LDT1 or LDT2 vehicles meeting the LEV II standards in a given model year (based on a manufacturer's projected sales volume of vehicles in each category) by 4 for the 2004 model year, 3 for the 2005 model year, 2 for the 2006 model year and 1 for the 2007 model year. The yearly results for PCs/LDT1s shall be summed together to determine a separate cumulative total for PCs/LDT1s and the yearly results for LDT2s shall be summed together to determine a cumulative total for LDT2s. The cumulative total for each category must be equal to or exceed 500 to be considered equivalent. A manufacturer may add vehicles introduced before the 2004 model year (e.g., the percent of vehicles introduced in 2003 would be multiplied by 5) to the cumulative total.

(3) *Medium-Duty Vehicle Phase-In Requirements.*

(A) A manufacturer of MDVs, other than a small volume manufacturer, shall certify an equivalent percentage of its MDV fleet according to the following phase-in schedule:

Model Year	Vehicles Certified to ú1960.1(h)(1), (h)(2), and ú1961(a)(1) (%)		Vehicles Certified to ú1956.8(g) or (h) (%)		
	LEV	ULEV	Tier 1	LEV	ULEV
2001	80	20	100	0	0
2002	70	30	0	100	0
2003	60	40	0	100	0
2004 +	40	60	0	0	100

(B) *Phase-In Requirements for LEV II MDVs.* For the 2004 through 2006 model years, a manufacturer, other than a small volume manufacturer must phase-in at least one test group per model year to the MDV LEV II standards. All 2007 and subsequent model year MDVs, including those produced by a small volume manufacturer, are subject to the LEV II MDV standards. Beginning in the 2005 model year, all medium-duty engines certified to the optional medium-duty engine standards in title 13, CCR ú1956.8(c) or (h), including those produced by a small volume manufacturer, must meet the standards set forth in title 13, CCR ú1956.8(c) or (h), as applicable. A manufacturer that elects to certify to the Option 1 or Option 2 federal standards as set forth in 40 CFR ú86.005-10(f) is not subject to these phase-in requirements.

(C) *Identifying a Manufacturer's MDV Fleet.* For the 2001 and subsequent model years, each manufacturer's MDV fleet shall be defined as the total number of California-certified MDVs produced and delivered for sale in California. The percentages shall be applied to the manufacturers' total production of California-certified medium-duty vehicles delivered for sale in California. For the 2005 and subsequent model years, a manufacturer that elects to certify to the optional medium-duty engine standards in title 13, CCR, ú1956.8(c) or (h) shall not count those engines in the manufacturer's total production of California-certified medium-duty vehicles for purposes of this subsection.

1 (D) Requirements for Small Volume Manufacturers. In
2 2001 through 2003 model years, a small volume manufacturer shall
3 certify, produce, and deliver for sale in California vehicles or
4 engines certified to the MDV Tier 1 standards in a quantity
5 equivalent to 100% of its MDV fleet. In 2004 through 2006 model
6 years, a small volume manufacturer shall certify, produce, and
7 deliver for sale in California vehicles or engines certified to
8 the MDV LEV I standards in a quantity equivalent to 100% of its
9 MDV fleet. Engines certified to these MDV LEV I standards are
10 not be eligible for emissions averaging.

11 (E) For a manufacturer that elects to certify to the
12 optional medium-duty engine standards in title 13, CCR 1956.8(c)
13 or (h), all such 2005 and subsequent model year MDVs, including
14 those produced by a small volume manufacturer, shall be subject
15 to the emissions averaging provisions applicable to heavy-duty
16 diesel or Otto-cycle engines as set forth in the California
17 Exhaust Emission Standards and Test Procedures for 2004 and
18 Subsequent Model Heavy-Duty Otto-Cycle Engines, - or the
19 California Exhaust Emission Standards and Test Procedures for
20 2004 and Subsequent Model Heavy-Duty Diesel Engines, incorporated
21 by reference in 1956.8(b) or (d), as applicable.

22 (c) *Calculation of NMOG Credits/Debits*

23 (1) *Calculation of NMOG Credits for Passenger Cars and*
24 *Light-Duty Trucks.* In 2001 and subsequent model years, a
25 manufacturer that achieves fleet average NMOG values lower than
26 the fleet average NMOG requirement for the corresponding model
27 year shall receive credits in units of g/mi NMOG determined as:

28
29
$$[(\text{Fleet Average NMOG Requirement}) - (\text{Manufacturer's Fleet}$$

30
$$\text{Average NMOG Value})] \times$$

31
$$(\text{Total No. of Vehicles Produced and Delivered for Sale in}$$

32
$$\text{California, Including ZEVs and HEVs}).$$

1 A manufacturer with 2001 and subsequent model year fleet average
2 NMOG values greater than the fleet average requirement for the
3 corresponding model year shall receive debits in units of g/mi
4 NMOG equal to the amount of negative credits determined by the
5 aforementioned equation. For the 2001 and subsequent model
6 years, the total g/mi NMOG credits or debits earned for PCs and
7 LDTs 0-3750 lbs. LVW, for LDTs 3751-5750 lbs. LVW and for LDTs
8 3751 lbs. LVW - 8500 lbs. GVW shall be summed together. The
9 resulting amount shall constitute the g/mi NMOG credits or debits
10 accrued by the manufacturer for the model year.

11 (2) *Calculation of Vehicle Equivalent NMOG Credits for*
12 *Medium-Duty Vehicles.*

13 (A) In 2001 and subsequent model years, a manufacturer
14 that produces and delivers for sale in California MDVs in excess
15 of the equivalent requirements for LEVs, ULEVs and/or SULEVs
16 certified to the exhaust emission standards set forth in section
17 1961(a)(1) or to the exhaust emission standards set forth in
18 Title 13, CCR, Section 1956.8(h) shall receive
19 Vehicle-Equivalent Credits- (or VECs-) calculated in accordance
20 with the following equation, where the term produced- means
21 produced and delivered for sale in California:

22 {[(No. of LEVs Produced excluding HEVs) +
23 (No. of LEV HEVs x HEV VEC factor for LEVs)] +
24 (1.20 x No. of LEVs certified to the 150,000 mile
25 standards)} -
26 (Equivalent No. of LEVs Required to be Produced)} +

27 {[(1.4) x (No. of ULEVs Produced excluding HEVs) +
28 (No. of ULEV HEVs x HEV VEC factor for ULEVs)] +
29 (1.50 x No. of ULEVs certified to the 150,000 mile
30 standards)} -
31 [(1.4) x (Equivalent No. of ULEVs Required to be
32 Produced)]} +

33 {[(1.7) x (No. of SULEVs Produced excluding HEVs) +

1 (No. of SULEV HEVs x HEV VEC factor for SULEVs)] +
 2 (1.75 x No. of SULEVs certified to the 150,000 mile
 3 standards)} -
 4 [(1.7) x [(Equivalent No. of SULEVs Required to be
 5 Produced)]]} +
 6 [(2.0) x (No. of ZEVs Certified and Produced as MDVs)].

7 MDVs certified prior to the 2004 model year to the LEV I LEV
 8 or ULEV standards for PCs and LDTs 0-3750 lbs. LVW set forth in
 9 section E.1 of these test procedures shall receive VECs
 10 calculated in accordance with the following equation, where the
 11 term produced- means produced and delivered for sale in
 12 California:

13 [(1.6) x (No. of MDVs meeting the LEV I LEV standards for PCs and LDTs 0-
 14 3750 lbs. LVW excluding HEVs) +
 15 (No. of HEVs meeting the LEV I LEV standards for PCs and LDTs 0-3750 lbs.
 16 LVW x HEV VEC factor for MDVs meeting the LEV I LEV standards for PCs and
 17 LDTs 0-3750 lbs. LVW)]+
 18 [(1.65 x No. of MDVs certified to the 150,000 mile LEV I LEV standards for
 19 PCs and LDTs 0-3750 lbs.)] +

20 [(1.8) x (No. of MDVs meeting the LEV I ULEV standards for PCs and LDTs 0-
 21 3750 lbs. LVW excluding HEVs) +
 22 (No. of HEVs meeting the LEV I ULEV standards for PCs and LDTs 0-3750 lbs.
 23 LVW x HEV VEC factor for MDVs meeting the LEV I ULEV standards for PCs and
 24 LDTs 0-3750 lbs. LVW)]+
 25 [(1.85 x No. of MDVs certified to the 150,000 mile LEV I ULEV standards for
 26 PCs and LDTs 0-3750 lbs.)].

27 (B) *MDV HEV VEC factor.* The MDV HEV VEC factor is
 28 calculated as follows:

29 1 + [(LEV standard - ULEV standard) x (Zero-emission VMT Factor)
 30 LEV standard] for LEVs;
 31 1 + [(ULEV standard - SULEV standard) x (Zero-emission VMT
 32 Factor) ULEV standard] for ULEVs;

1 1 + [(SULEV standard - ZEV standard) x (Zero-emission VMT Factor)
2 SULEV standard] for SULEVs;
3 where Zero-emission VMT Factor- for an HEV is determined in
4 accordance with section 1962.

5 The HEV VEC factor for MDVs prior to model year 2004 meeting
6 the LEV I LEV and ULEV standards for PCs and LDTs 0-3750 lbs. LVW
7 is calculated as follows:

8 1 + [(MDV SULEV standard - PC LEV I LEV standard) x (Zero-
9 emission VMT Factor) PC LEV I LEV standard] for MDVs
10 meeting the LEV I LEV standards for PCs and LDTs 0-3750 lbs.
11 LVW;
12 1 + [(MDV SULEV standard - PC ULEV standard) x (Zero-
13 emission VMT Factor) PC LEV I ULEV standard] for MDVs
14 meeting the ULEV I LEV standards for PCs and LDTs 0-3750
15 lbs. LVW.

16 (C) A manufacturer that fails to produce and deliver
17 for sale in California the equivalent quantity of MDVs certified
18 to LEV, ULEV and/or SULEV exhaust emission standards, shall
19 receive Vehicle-Equivalent Debits- (or VEDs-) equal to the
20 amount of negative VECs determined by the equation in section
21 1961(c)(2)(A).

22 (D) Only ZEVs certified as MDVs and not used to meet
23 the ZEV requirement shall be included in the calculation of VECs.

24 (3) *Procedure for Offsetting Debits.*

25 (A) A manufacturer shall equalize emission debits by
26 earning g/mi NMOG emission credits or VECs in an amount equal to
27 the g/mi NMOG debits or VEDs, or by submitting a commensurate
28 amount of g/mi NMOG credits or VECs to the Executive Officer that
29 were earned previously or acquired from another manufacturer.
30 For 2001 through 2003 and for 2007 and subsequent model years,
31 manufacturers shall equalize emission debits by the end of the

1 following model year. For 2004 through 2006 model years, a
2 manufacturer shall equalize NMOG debits for PCs and LDTs and LEV
3 II MDVs within three model years and prior to the end of the 2007
4 model year. If emission debits are not equalized within the
5 specified time period, the manufacturer shall be subject to the
6 Health and Safety Code section 43211 civil penalty applicable to
7 a manufacturer which sells a new motor vehicle that does not meet
8 the applicable emission standards adopted by the state board.
9 The cause of action shall be deemed to accrue when the emission
10 debits are not equalized by the end of the specified time period.
11 For the purposes of Health and Safety Code section 43211, the
12 number of passenger cars and light-duty trucks not meeting the
13 state board's emission standards shall be determined by dividing
14 the total amount of g/mi NMOG emission debits for the model year
15 by the g/mi NMOG fleet average requirement for PCs and LDTs
16 0-3750 lbs. LVW applicable for the model year in which the debits
17 were first incurred and the number of medium-duty vehicles not
18 meeting the state board's emission standards shall be equal to
19 the amount of VEDs incurred.

20 (B) The emission credits earned in any given model
21 year shall retain full value through the subsequent model year.
22 The value of any credits not used to equalize the previous
23 model-year's debit shall be discounted by 50% at the beginning of
24 second model year after being earned, shall be discounted to 25%
25 of its original value if not used by the beginning of the third
26 model year after being earned, and will have no value if not used
27 by the beginning of the fourth model year after being earned.

28 (d) *Test Procedures.* The certification requirements and
29 test procedures for determining compliance with the emission
30 standards in this section are set forth in the California
31 Exhaust Emission Standards and Test Procedures for 2001 and
32 Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-
33 Duty Vehicles,- as amended May 28, 2004, and the California
34 Non-Methane Organic Gas Test Procedures,- as amended July 30,
35 2002, which are incorporated herein by reference. In the case
36 of hybrid electric vehicles and on-board fuel-fired heaters, the

1 certification requirements and test procedures for determining
2 compliance with the emission standards in this section are set
3 forth in the California Exhaust Emission Standards and Test
4 Procedures for 2005 and Subsequent Model Zero-Emission Vehicles,
5 and 2001 and Subsequent Model Hybrid Electric Vehicles, in the
6 Passenger Car, Light-Duty Truck and Medium-Duty Vehicle
7 Classes,- incorporated by reference in section 1962.

8 (e) *Abbreviations.* The following abbreviations are used in
9 this section 1961:

10 ALVW- means adjusted loaded vehicle weight.

11 ASTM- means American Society of Testing and Materials.

12 CO- means carbon monoxide.

13 FTP- means Federal Test Procedure.

14 g/mi- means grams per mile.

15 GVW- means gross vehicle weight.

16 GVWR- means gross vehicle weight rating.

17 HEV- means hybrid-electric vehicle.

18 LDT- means light-duty truck.

19 LDT1- means a light-duty truck with a loaded vehicle weight
20 of 0-3750 pounds.

21 LDT2- means a LEV II- light-duty truck with a loaded
22 vehicle weight of 3751 pounds to a gross vehicle weight of
23 8500 pounds or a LEV I- light-duty truck with a loaded
24 vehicle weight of 3751-5750 pounds.

25 LEV- means low-emission vehicle.

26 LPG- means liquefied petroleum gas.

27 LVW- means loaded vehicle weight.

28 MDV- means medium-duty vehicle.

29 NMHC- means non-methane hydrocarbons.

30 mg/mi- means milligrams per mile.

31 NMHC- means non-methane hydrocarbons.

32 Non-Methane Organic Gases- or NMOG- means the total mass
33 of oxygenated and non-oxygenated hydrocarbon emissions.

34 NOx- means oxides of nitrogen.

35 PC- means passenger car.

36 SULEV- means super-ultra-low-emission vehicle.

1 TLEV- means transitional low-emission vehicle.

2 ULEV- means ultra-low-emission vehicle.

3 VEC- means vehicle-equivalent credits.

4 VED- means vehicle-equivalent debits.

5 VMT- means vehicle miles traveled.

6 ZEV- means zero-emission vehicle.

7 Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101,
8 43104 and 43105, Health and Safety Code. Reference: Sections 39002,
9 39003, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5,
10 43102, 43104, 43105, 43106, 43107, 43204, and 43205.5, Health and Safety
11 Code.

1 **1962. Zero-Emission Vehicle Standards for 2005 and Subsequent**
2 **Model Passenger Cars, Light-Duty Trucks, and Medium-Duty**
3 **Vehicles.**

4 (a) *ZEV Emission Standard.* The Executive Officer shall
5 certify new 2005 and subsequent model passenger cars, light-duty
6 trucks and medium-duty vehicles as ZEVs if the vehicles produce
7 zero exhaust emissions of any criteria pollutant (or precursor
8 pollutant) under any and all possible operational modes and
9 conditions. Incorporation of a fuel-fired heater shall not
10 preclude a vehicle from being certified as a ZEV provided: (1)
11 the fuel-fired heater cannot be operated at ambient temperatures
12 above ~~70~~ (2) the heater is demonstrated to have zero fuel
13 evaporative emissions under any and all possible operational
14 modes and conditions, and (3) the emissions of any pollutant from
15 the fuel-fired heater when operated at an ambient temperature
16 between ~~58~~ and ~~86~~ do not exceed the emission standard for that
17 pollutant for a ULEV under section 1961(a)(1).

18 A vehicle that would meet the emissions standards for a ZEV
19 except that it uses a fuel-fired heater that can be operated at
20 ambient temperatures above ~~70~~ that cannot be demonstrated to
21 have zero fuel evaporative emissions under any and all possible
22 operation modes and conditions, or that has emissions of any
23 pollutant exceeding the emission standard for that pollutant for
24 a ULEV under section 1961(a)(1), shall be certified based on the
25 emission level of the fuel-fired heater.

26 (b) *Percentage ZEV Requirements.*

27 (1) *General Percentage ZEV Requirement.*

28 (A) *Basic Requirement.* The minimum percentage ZEV
29 requirement for each manufacturer is listed in the table below as
30 the percentage of the PCs and LDT1s, and LDT2s to the extent
31 required by section (b)(1)(C), produced by the manufacturer and
32 delivered for sale in California that must be ZEVs, subject to
33 the conditions in this section 1962(b).

<i>Model Years</i>	<i>Minimum ZEV Requirement</i>
2005 through 2008	10 percent
2009 through 2011	11 percent
2012 through 2014	12 percent
2015 through 2017	14 percent
2018 and subsequent	16 percent

(B) *Calculating the Number of Vehicles to Which the Percentage ZEV Requirement is Applied.* A manufacturer's volume of PCs and LDT1s produced and delivered for sale in California will be averaged for the 1997, 1998, and 1999 model years to determine the California PC and LDT1 production volume for the model year 2005 ZEV requirements. For subsequent three-year periods following model year 2005, a manufacturer's California production volume of PCs and LDT1s, and LDT2s as applicable, will be based on a three-year average of the manufacturer's volume of PCs and LDT1s, and LDT2s as applicable, produced and delivered for sale in California in the prior fourth, fifth and sixth years (e.g. 2006 to 2008 model-year ZEV requirements will be based on California production volumes of PCs and LDT1s, and LDT2s as applicable, for 2000 to 2002 model years). This production averaging is used to determine ZEV requirements only, and has no effect on a manufacturer's size determination. As an alternative to the three year averaging of prior year production described above, a manufacturer may during model year 2005 or the first model year of a subsequent three year period elect to base its ZEV obligation on the number of PCs and LDT1s, and LDT2s to the extent required by section (b)(1)(C), produced by the manufacturer and delivered for sale in California that same year. If a manufacturer elects to use this method after model year 2005 it must be used for each year of the three-year period. In applying the ZEV requirement, a PC, LDT1, or LDT2 (beginning in the 2007 model year) that is produced by a small volume manufacturer, but is marketed in California by another manufacturer under the other manufacturer's nameplate, shall be treated as having been produced by the marketing manufacturer.

(C) *Phase-in of ZEV Requirements for LDT2s.* Beginning with the ZEV requirements for the 2007 model year, a manufacturer's LDT2 production shall be included in determining the manufacturer's overall ZEV requirement under section (b)(1)(A) in the increasing percentages shown the table below.

<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012+</i>
17%	34%	51%	68%	85%	100%

(D) *Exclusion of ZEVs in Determining a Manufacturer's Sales Volume.* In calculating for purposes of sections 1962(b)(1)(B) and 1962(b)(1)(C) the volume of PCs, LDT1s and LDT2s a manufacturer has produced

1 and delivered for sale in California, the manufacturer shall exclude the
2 number of ZEVs produced by the manufacturer, or by a subsidiary in which the
3 manufacturer has a greater than 50% ownership interest, and delivered for sale
4 in California.

5 (2) *Requirements for Large Volume Manufacturers.*

6 (A) *Primary Requirements for Large Volume Manufacturers.* In the
7 2005 through 2008 model years, a large-volume manufacturer must meet at least
8 20% of its ZEV requirement with ZEVs or ZEV credits generated by such
9 vehicles, and at least another 20% with ZEVs, advanced technology PZEVs, or
10 credits generated by such vehicles. The remainder of the large-volume
11 manufacturer's ZEV requirement may be met using PZEVs or credits generated by
12 such vehicles. As the ZEV requirement increases over time from 10% in model
13 year 2005 to 16% in model years 2018 and subsequent, the maximum portion of a
14 large volume manufacturer's percentage ZEV requirement that may be satisfied
15 by PZEVs that are not advanced technology PZEVs, or credits generated by such
16 vehicles, is limited to 6% of the manufacturer's applicable California PC,
17 LDT1, and LDT2 production volume; advanced technology PZEVs or credits
18 generated by such vehicles may be used to meet up to one-half of the
19 manufacturer's remaining ZEV requirement.

20 (B) *Alternative Requirements for Large Volume Manufacturers.*

21 1. *Minimum Floor for Production of Type III ZEVs.*

22 a. *Requirement For the 2005-2008 Model Years.* A large volume
23 manufacturer electing to be subject to the alternative compliance requirements
24 during model years 2005 through 2008 must produce, deliver for sale, and place
25 in service in California enough 2001-2008 model-year Type III ZEVs to generate
26 ZEV credits sufficient to meet a cumulative percentage ZEV requirement of 1.09
27 percent of the manufacturer's average annual California sales of PCs and LDT1s
28 over the five year period from model years 1997 through 2001, or submit an
29 equivalent number of credits generated by such vehicles. The manufacturer may
30 meet up to one half of this requirement with [i] 2004-2008 model-year Type I
31 or Type II ZEVs, provided that 20 Type I ZEVs or 10 Type II ZEVs will equal
32 one Type III ZEV, and [ii] 1997-2003 model-year Type I or Type II ZEVs that
33 qualify for an extended service multiplier under section 1962(f) for a year
34 primarily during calendar years 2004-2008, provided that 33 years of such a
35 multiplier will equal one Type III ZEV.

36 b. *Requirement For the 2009-2011 Model Years.* A large volume
37 manufacturer electing to be subject to the alternative compliance requirements
38 during model years 2009 through 2011 must produce, deliver for sale, and place

1 in service in California enough 2009-2011 model-year Type III ZEVs to generate
2 ZEV credits sufficient to meet the 2009-2011 alternative path percentage, as
3 calculated pursuant to section 1962(b)(2)(B)1.e., of the manufacturer's
4 section 1962(b)(1) percentage ZEV requirement for the 2010 model year, based
5 on the prior year method described in section 1962(b)(1)(B), or submit an
6 equivalent number of credits generated by such vehicles. The manufacturer may
7 meet up to one half of this requirement with [i] 2009-2011 model-year Type I
8 or Type II ZEVs, provided that 20 Type I ZEVs or 10 Type II ZEVs will equal
9 one Type III ZEV, and [ii] 1997-2003 model-year ZEVs that qualify for an
10 extended service multiplier under section 1962(f) for a year primarily during
11 calendar years 2009-2011, provided that 33 years of such a multiplier will
12 equal one Type III ZEV.

13 c. *Requirement For the 2012-2014 Model Years.* A large volume
14 manufacturer electing to be subject to the alternative compliance requirements
15 during model years 2012 through 2014 must produce, deliver for sale, and place
16 in service in California enough 2012-2014 model-year Type III ZEVs to generate
17 ZEV credits sufficient to meet the 2012-2014 alternative path percentage, as
18 calculated pursuant to section 1962(b)(2)(B)1.e., of the manufacturer's
19 section 1962(b)(1) percentage ZEV requirement for the 2013 model year, based
20 on the prior year method described in section 1962(b)(1)(B), or submit an
21 equivalent number of credits generated by such vehicles. The manufacturer may
22 meet up to one half of this requirement with 2012-2014 model-year Type I or
23 Type II ZEVs, provided that 10 Type I ZEVs or 5 Type II ZEVs will equal one
24 Type III ZEV.

25 d. *Requirement For the 2015-2017 Model Years.* A large volume
26 manufacturer electing to be subject to the alternative compliance requirements
27 during model years 2015 through 2017 must produce, deliver for sale, and place
28 in service in California enough 2015-2017 model-year Type III ZEVs to generate
29 ZEV credits sufficient to meet the 2015-2017 alternative path percentage, as
30 calculated in section 1962(b)(2)(B)1.e., of the manufacturer's section
31 1962(b)(1) percentage ZEV requirement for the 2016 model year, based on the
32 prior year method described in section 1962(b)(1)(B), or submit an equivalent
33 number of credits generated by such vehicles. The manufacturer may meet up to
34 one half of this requirement with 2015-2017 model-year Type I or Type II ZEVs,
35 provided that 10 Type I ZEVs or 5 Type II ZEVs will equal one Type III ZEV.

36 e. *Calculation of a Manufacturer s Alternative Path*
37 *Percentage.* A manufacturer s alternative path percentage for a given time
38 period is calculated as the target number of credits for each time period
39 divided by the applicable combined model year ZEV obligation of all large
40 volume manufacturers for that same time period, where:

Time Period (MYS)	Target Number of Alternative Path Type III ZEVs	Credits per Vehicle	Target Number of Credits	Combined Model Year ZEV Obligation	Alternative Path Percentage
2009 2011	2,500	4	10,000	A	$(10,000/A) \times 100$
2012 2014	25,000	3	75,000	B	$(75,000/B) \times 100$
2015 2017	50,000	3	150,000	C	$(150,000/C) \times 100$

10 And where:

11 A = The combined total section 1962(b)(1) percentage ZEV requirement, based on
 12 the prior year method described in section 1962(b)(1)(B), that would apply for
 13 all large manufacturers for the 2010 model year,

14 B = The combined total section 1962(b)(1) percentage ZEV requirement, based on
 15 the prior year method described in section 1962(b)(1)(B), that would apply for
 16 all large manufacturers for the 2013 model year, and

17 C = The combined total section 1962(b)(1) percentage ZEV requirement, based on
 18 the prior year method described in section 1962(b)(1)(B), that would apply for
 19 all large manufacturers for the 2016 model year.

20 f. *Exclusion of Additional Credits for Transportation Systems.*
 21 Any additional credits for transportation systems generated in accordance with
 22 section 1962(g)(5) shall not be counted towards compliance with this section
 23 1962(b)(2)(B)1.a.-d.

24 g. *Carry-over of Excess Credits.* Where a manufacturer
 25 generates more qualifying ZEV credits than are needed to meet the minimum
 26 floor requirement for the production of Type III ZEVs in one of the periods
 27 identified in section 1962(b)(2)(B)1.a.-c., the qualifying ZEV credits may be
 28 used towards meeting the minimum floor requirement for the production of Type
 29 III ZEVs in a subsequent period, provided that the value of these carryover
 30 credits shall be based on the model year in which the credits are used.

31 h. *Failure to Meet Requirement for Production of Type III ZEVs.*
 32 A manufacturer that, after electing to be subject to the alternative
 33 requirements in section 1962(b)(2)(B) for any model year from 2005 through
 34 2017, fails to meet the requirement in section 1962(b)(2)(B)1.a.-d. by the
 35 end of the specified three or four year period in which the model year falls,
 36 shall be treated as subject to the primary requirements in section
 37 1962(b)(2)(A) for all model years in the specified three or four year period.

1 i. The number of Type III ZEVs needed for a manufacturer under
2 section 1962(b)(2)(B)1.a.-d shall be rounded to the nearest whole number.

3 2. *Compliance With Percentage ZEV Requirements.* In the 2005
4 through 2008 model years, a large volume manufacturer electing to be subject
5 to the alternative compliance requirements in a given model year must meet at
6 least 40 percent of its ZEV requirement for that model year with ZEVs,
7 advanced technology PZEVs, or credits generated from such vehicles. The
8 remainder of the large volume manufacturer s ZEV requirement may be met using
9 PZEVs or credits generated from such vehicles. As the ZEV requirement
10 increases over time from 11% in model year 2009 to 16% in model years 2018 and
11 subsequent, the maximum portion of the large volume manufacturer s percentage
12 ZEV requirement that may be satisfied by PZEVs that are not advanced
13 technology PZEVs, or credits generated by such vehicles, is limited to 6% of
14 the manufacturer s applicable California PC, LDT1, and LDT2 production volume;
15 ZEVs, AT PZEVs, or credits generated by such vehicles may be used to meet the
16 manufacturer s remaining ZEV requirement.

17 3. *Sunset of Alternative Requirements After the 2017 Model*
18 *Year.* The alternative requirements in section 1962(b)(2)(B) are not available
19 after the 2017 model year.

20 (C) *Election of the Primary or Alternative Requirements for*
21 *Large Volume Manufacturers.* A large volume manufacturer shall be subject to
22 the primary ZEV requirements for the 2005 model year unless it notifies the
23 Executive Officer in writing prior to the start of the 2005 model year that it
24 is electing to be subject to the alternative compliance requirements for that
25 model year. Thereafter, a manufacturer shall be subject to the same
26 compliance option as applied in the previous model year unless it notifies the
27 Executive Officer in writing prior to the start of a new model year that it is
28 electing to switch to the other compliance option for that new model year.
29 However, a large volume manufacturer that has previously elected to be subject
30 to the primary ZEV requirements for one or more of the model years in the
31 three or four year periods identified in section 1961(b)(1(B)1.a.-d. may prior
32 to the end of the three or four year period elect to become subject to the
33 alternative compliance requirements for the full three or four year period
34 upon a demonstration that it has complied with all of the applicable
35 requirements for that period in section 1962(b)(2)(B)1.a.-d.

36 (D) *Use of Credits from Model Year 2003-2004 PZEVs.* A large
37 volume manufacturer may produce, and deliver for sale in California, model
38 year 2003 or 2004 PZEVs that generate credits exceeding the number of credits
39 equal to 6 percent of the average annual volume of 1997, 1998 and 1999 PCs and
40 LDT1s produced and delivered for sale in California by the manufacturer. In
41 that event, the manufacturer may use those excess credits as AT PZEV credits
42 in the 2005 and 2006 model years.

1 (3) *Requirements for Intermediate Volume Manufacturers.* In the 2005
2 and subsequent model years, an intermediate volume manufacturer may meet its
3 ZEV requirement with up to 100 percent PZEVs or credits generated by such
4 vehicles.

5 (4) *Requirements for Small Volume Manufacturers and Independent Low*
6 *Volume Manufacturers.* A small volume manufacturer or an independent low
7 volume manufacturer is not required to meet the percentage ZEV requirements.
8 However, a small volume manufacturer or an independent low volume manufacturer
9 may earn and market credits for the ZEVs or PZEVs it produces and delivers for
10 sale in California.

11 (5) *Counting ZEVs and PZEVs in Fleet Average NMOG Calculations.* For
12 the purposes of calculating a manufacturer s fleet average NMOG value and NMOG
13 credits under sections 1960.1(g)(2) and 1961(b) and (c), a vehicle certified
14 as a ZEV is counted as one ZEV, and a PZEV is counted as one SULEV certified
15 to the 150,000 mile standards regardless of any ZEV or PZEV multipliers.

16 (6) *Implementation Prior to 2005 Model Year.* Prior to the 2005 model
17 year, a manufacturer that voluntarily produces vehicles meeting the ZEV
18 emission standards applicable to 2005 and subsequent model year vehicles may
19 certify the vehicles to those standards and requirements for purposes of
20 calculating fleet average NMOG exhaust emission values and NMOG credits under
21 sections 1960.1(g)(2) and 1961(b) and (c), and for calculating ZEV credits as
22 set forth in section 1962(d).

23 (7) *Changes in Small Volume, Independent Low Volume, and Intermediate*
24 *Volume Manufacturer Status.*

25 (A) *Increases in California Production Volume.* In the 2003 and
26 subsequent model years, if a small volume manufacturer s average California
27 production volume exceeds 4,500 units of new PCs, LDTs, and MDVs based on the
28 average number of vehicles produced and delivered for sale for the three
29 previous consecutive model years, or if an independent low volume
30 manufacturer s average California production volume exceeds 10,000 units of
31 new PCs, LDTs, and MDVs based on the average number of vehicles produced and
32 delivered for sale for the three previous consecutive model years, or if an
33 intermediate volume manufacturer s average California production volume
34 exceeds 60,000 units of new PCs, LDTs, and MDVs based on the average number of
35 vehicles produced and delivered for sale for the three previous consecutive
36 model years, the manufacturer shall no longer be treated as a small volume,
37 independent low volume, or intermediate volume manufacturer, as applicable,
38 and shall comply with the ZEV requirements for independent low volume,
39 intermediate volume or large volume manufacturers, as applicable, beginning
40 with the sixth model year after the last of the three consecutive model years.

1 The lead time shall be four rather than six years where a manufacturer ceases
2 to be a small or intermediate volume manufacturer in the 2003 or subsequent
3 years due to the aggregation requirements in majority ownership situations,
4 except that if the majority ownership in the manufacturer was acquired prior
5 to the 2001 model year, the manufacturer must comply with the stepped-up ZEV
6 requirements starting in the 2010 model year.

7 (B) *Decreases in California Production Volume.* If a
8 manufacturer's average California production volume falls below 4,500, 10,000
9 or 60,000 units of new PCs, LDTs, and MDVs, as applicable, based on the
10 average number of vehicles produced and delivered for sale for the three
11 previous consecutive model years, the manufacturer shall be treated as a small
12 volume, independent low volume, or intermediate volume manufacturer, as
13 applicable, and shall be subject to the requirements for a small volume,
14 independent low volume, or intermediate volume manufacturer beginning with the
15 next model year.

16 (C) *Calculating California Production Volume in Change of*
17 *Ownership Situations.* Where a manufacturer experiences a change in ownership
18 in a particular model year, the change will affect application of the
19 aggregation requirements on the manufacturer starting with the next model
20 year. The manufacturer's small or intermediate volume manufacturer status for
21 the next model year shall be based on the average California production volume
22 in the three previous consecutive model years of those manufacturers whose
23 production volumes must be aggregated for that next model year. For example,
24 where a change of ownership during the 2004 model year results in a
25 requirement that the production volume of Manufacturer A be aggregated with
26 the production volume of Manufacturer B, Manufacturer A's status for the 2005
27 model year will be based on the production volumes of Manufacturers A and B in
28 the 2002-2004 model years. Where the production volume of Manufacturer A must
29 be aggregated with the production volumes of Manufacturers B and C for the
30 2004 model year, and during that model year a change in ownership eliminates
31 the requirement that Manufacturer B's production volume be aggregated with
32 Manufacturer A's, Manufacturer A's status for the 2005 model year will be
33 based on the production volumes of Manufacturers A and C in the 2002-2004
34 model years. In either case, the lead time provisions in
35 section 1962(b)(5)(A) and (B) will apply.

36 (c) *Partial ZEV Allowance Vehicles (PZEVs).*

37 (1) *Introduction.* This section 1962(c) sets forth the criteria for
38 identifying vehicles delivered for sale in California as PZEVs. A PZEV is a
39 vehicle that cannot be certified as a ZEV but qualifies for a PZEV allowance
40 of at least 0.2.

1 (2) *Baseline PZEV Allowance.* In order for a vehicle to be eligible to
2 receive a PZEV allowance, the manufacturer must demonstrate compliance with
3 all of the following requirements. A qualifying vehicle will receive a
4 baseline PZEV allowance of 0.2.

5 (A) *SULEV Standards.* Certify the vehicle to the 150,000-mile
6 SULEV exhaust emission standards for PCs and LDTs in section 1961(a)(1) (for
7 model years 2003 through 2006, existing SULEV intermediate in-use compliance
8 standards shall apply to all PZEVs). Bi-fuel, fuel-flexible and dual-fuel
9 vehicles must certify to the applicable 150,000-mile SULEV exhaust emission
10 standards when operating on both fuels;

11 (B) *Evaporative Emissions.* Certify the vehicle to the
12 evaporative emission standards in section 1976(b)(1)(E) (zero evaporative
13 emissions standards);

14 (C) *OBD.* Certify that the vehicle will meet the applicable on-
15 board diagnostic requirements in section 1968.1 for 150,000 miles; and

16 (D) *Extended Warranty.* Extend the performance and defects
17 warranty period set forth in sections 2037(b)(2) and 2038(b)(2) to 15 years or
18 150,000 miles, whichever occurs first, except that the time period is to be 10
19 years for a zero emission energy storage device used for traction power (such
20 as a battery, ultracapacitor, or other electric storage device).

21 (3) *Zero-Emission VMT PZEV Allowance.*

22 (A) *Calculation of Zero Emission VMT Allowance.* A vehicle that
23 meets the requirements of section 1962(c)(2) and has zero-emission vehicle
24 miles traveled (VMT) capability will generate an additional zero emission
25 VMT PZEV allowance calculated as follows:

<i>Urban All-Electric Range</i>	<i>Zero-emission VMT Allowance</i>
< 10 miles	0.0
10 miles to 90 miles	$(33.8 + [0.5 \times \text{Urban AER}]) / 35$
> 90 miles	2.25

1 The urban all-electric range shall be determined in
2 accordance with section E.3.(2)(a) of the California Exhaust
3 Emission Standards and Test Procedures for 2005 and Subsequent
4 Model Zero-Emission Vehicles, and 2001 and Subsequent Model
5 Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck
6 and Medium-Duty Vehicle Classes,- incorporated by reference in
7 section 1962(h).

8 (B) *Alternative Procedures.* As an alternative to
9 determining the zero-emission VMT allowance in accordance with
10 the preceding section 1962(c)(3)(A), a manufacturer may submit
11 for Executive Officer approval an alternative procedure for
12 determining the zero-emission VMT potential of the vehicle as a
13 percent of total VMT, along with an engineering evaluation that
14 adequately substantiates the zero-emission VMT determination.
15 For example, an alternative procedure may provide that a vehicle
16 with zero-emissions of one regulated pollutant (e.g. NOx) and not
17 another (e.g. NMOG) will qualify for a zero-emission VMT
18 allowance of 1.5.

19 (C) *Additional Allowances for Qualifying HEVs.* The
20 Executive Officer shall approve an additional 0.1 zero-emission
21 VMT partial ZEV allowance for an HEV with an all-electric range
22 if the manufacturer demonstrates to the reasonable satisfaction
23 of the Executive Officer that the HEV is equipped with software
24 and/or other strategies that would promote maximum use of off-
25 vehicle charging, and that the strategies employed are reasonably
26 reliable and tamper-proof.

27 (4) *PZEV Allowance for Advanced ZEV Componentry.* A vehicle
28 that meets the requirements of section 1962(c)(2) may qualify for
29 an advanced componentry PZEV allowance as provided in this
30 section 1962(c)(4).

31 (A) *Use of High Pressure Gaseous Fuel or Hydrogen*
32 *Storage System.* A vehicle equipped with a high pressure gaseous
33 fuel storage system capable of refueling at 3600 pounds per

1 square inch or more and operating exclusively on this gaseous
 2 fuel shall qualify for an advanced componentry PZEV allowance of
 3 0.2. A vehicle capable of operating exclusively on hydrogen
 4 stored in a high pressure system capable of refueling at 3600
 5 pounds per square inch or more, or stored in nongaseous form,
 6 shall instead qualify for an advanced componentry PZEV allowance
 7 of 0.3.

8 (B) *Use of a Qualifying HEV Electric Drive System.*

9 1. *Classification of HEVs.* HEVs qualifying for
 10 additional allowances or allowances that may be used in the AT
 11 PZEV category are classified in one of five types of HEVs based
 12 on the criteria in the following table.

Characteristics	Type A	Type B	Type C	Type D	Type E
Electric Drive System Peak Power Output	≥ 4 kW	≥ 4 kW <10 kW	≥ 10 kW	≥ 10 kW	≥ 50 kW
Traction Drive System Voltage	<60 Volts	≥ 60 Volts	< 60 Volts	≥ 60 Volts	≥ 60 volts
Traction Drive Boost	Yes	Yes	Yes	Yes	Yes
Regenerative Braking	Yes	Yes	Yes	Yes	Yes
Idle Start/Stop	Yes	Yes	Yes	Yes	Yes

28 2. *Type A HEVs.* A 2008 or earlier model-year PZEV
 29 that the manufacturer demonstrates to the reasonable satisfaction
 30 of the Executive Officer meets all of the criteria for a Type A
 31 HEV does not receive an additional allowance for meeting those

1 criteria but generates credits that may be used in the AT PZEV
2 category through the 2008 model year.

3 3. *Type B HEVs.* A 2008 or earlier model-year PZEV
4 that the manufacturer demonstrates to the reasonable satisfaction
5 of the Executive Officer meets all of the criteria for a Type B
6 HEV qualifies for an additional advanced componentry allowance of
7 0.2.

8 4. *Type C HEVs.* A 2011 or earlier model-year PZEV
9 that the manufacturer demonstrates to the reasonable satisfaction
10 of the Executive Officer meets all of the criteria for a Type C
11 HEV, and that is equipped with an advanced traction energy
12 storage system “ such as nickel metal-hydride batteries,
13 ultracapacitors, or other similar systems “ with a design
14 lifetime of at least 10 years, qualifies for an additional
15 advanced componentry allowance of 0.2.

16 5. *Type D HEVs.* A PZEV that the manufacturer
17 demonstrates to the reasonable satisfaction of the Executive
18 Officer meets all of the criteria for a Type D HEV qualifies for
19 an additional advanced componentry allowance of 0.4 in the 2003
20 through 2011 model years, 0.35 in the 2012 through 2014 model
21 years, and 0.25 in the 2015 and subsequent model years.

22 6. *Type E HEVs.* A PZEV that the manufacturer
23 demonstrates to the reasonable satisfaction of the Executive
24 Officer meets all of the criteria for a Type E HEV qualifies for
25 an additional advanced componentry allowance of 0.5 in the 2003
26 through 2011 model years, 0.45 in the 2012 through 2014 model
27 years, and 0.35 in the 2015 and subsequent model years.

28 7. *Severability.* In the event that all or part of
29 section 1962(c)(4)(B)1.-6. is found invalid, the remainder of
30 section 1962, including the remainder of
31 section 1962(c)(4)(B)1.-6. if any, remains in full force and
32 effect.

1 (5) *PZEV Allowance for Low Fuel-Cycle Emissions.* A vehicle
2 that uses fuel(s) with very low fuel-cycle emissions shall
3 receive a PZEV allowance not to exceed 0.3 (0.15 in the case of
4 an HEV that uses for propulsion any fuel that does not have very
5 low fuel-cycle emissions). In order to receive the fuel-cycle
6 PZEV allowance, a manufacturer must demonstrate to the Executive
7 Officer, using peer-reviewed studies or other relevant
8 information, that NMOG emissions associated with the fuel(s) used
9 by the vehicle (on a grams/mile basis) are lower than or equal to
10 0.01 grams/mile. Fuel-cycle emissions must be calculated based
11 on near-term production methods and infrastructure assumptions,
12 and the uncertainty in the results must be quantified. The fuel-
13 cycle PZEV allowance is calculated according to the following
14 formula:

$$\begin{aligned} 15 \quad & \text{PZEV Fuel Cycle Allowance} = 0.3 \times [(\text{percent of VMT using} \\ 16 \quad & \text{fuel(s) meeting the requirements of the preceding paragraph)} \\ 17 \quad & / 100] \end{aligned}$$

18 A manufacturer's demonstration to the Executive Officer that a
19 vehicle qualifies for a fuel-cycle PZEV allowance shall include
20 test results and/or empirical data supporting the estimate of the
21 relative proportion of VMT while operating on fuel(s) with very
22 low fuel-cycle emissions.

23 (6) *Combined PZEV Allowance.*

24 (A) *Calculation of Combined PZEV Allowance for a*
25 *Vehicle.* The combined PZEV allowance for a qualifying vehicle in
26 a particular model year is the sum of the PZEV allowances listed
27 in this section 1962(c)(6), multiplied by any PZEV introduction
28 phase-in multiplier listed in section 1962(c)(7), subject to the
29 caps in section 1962(c)(6)(B).

30 1. *Baseline PZEV Allowance.* The baseline PZEV
31 allowance of 0.2 for vehicles meeting the criteria in
32 section 1962(c)(2);

1 2. *Zero-Emission VMT PZEV Allowance.* The zero-
2 emission VMT PZEV allowance, if any, determined in accordance
3 with section 1962(c)(3);

4 3. *Advanced Componentry PZEV Allowance.* The
5 advanced ZEV componentry ZEV allowance, if any, determined in
6 accordance with section 1962(c)(4); and

7 4. *Fuel-Cycle Emissions PZEV Allowance.* The fuel-
8 cycle emissions PZEV allowance, if any, determined in accordance
9 with section 1962(c)(5).

10 (B) *Caps on the Value of an AT PZEV Allowance.*

11 1. *Cap for 2012 and Subsequent Model-Year Vehicles.*
12 The maximum value of AT PZEV allowances a 2012 and subsequent
13 model-year vehicle may earn, including the baseline PZEV
14 allowance, is 3.0.

15 2. *Cap Based on the Credit Value of a Type III ZEV.*
16 In no case may the combined AT PZEV allowance for a qualifying
17 vehicle in a particular model year, including the baseline PZEV
18 allowance, exceed the ZEV credits for a Type III ZEV placed in
19 service in the same model year.

20 (7) *PZEV Multipliers.*

21 (A) *PZEV Introduction Phase-In Multiplier.* Each 2000
22 through 2005 model-year PZEV that is produced and delivered for
23 sale in California, other than a PZEV qualifying for a phase-in
24 multiplier under section 1962(c)(7)(B), qualifies for a PZEV
25 introduction phase-in multiplier as follows:

	<i>MY 2000- 2003</i>	<i>MY 2004</i>	<i>MY 2005</i>
Multiplier	4.0	2.0	1.33

1 (B) Introduction Phase-In Multiplier for PZEVs That Earn a Zero
 2 Emission VMT Allowance. Each 2000 through 2011 model year PZEV that earns a
 3 zero emission VMT allowance under section 1962(c)(3) and is produced and
 4 delivered for sale in California qualifies for a phase-in multiplier as
 5 follows:

	MY 2000-2008	MY 2009-2011
Multiplier	6.0	3.0

7 (d) Qualification for ZEV Multipliers and Credits.

8 (1) 1996-1998 Model-Year ZEV Multipliers.

9 (A) 1996-1998 Model-Year ZEV Multiplier Based on Vehicle Range.
 10 1996-1998 model-year ZEVs shall qualify for a ZEV multiplier
 11 based on vehicle range as follows:

ZEV Multiplier	Vehicle Range (miles)	
	Model Years 1996 and 1997	Model Year 1998
2	any	100
3	≥70	130

16 Range shall be determined in accordance with section 9.f.(2)(a)
 17 of the California Exhaust Emission Standards and Test Procedures
 18 for 1988 Through 2000 Model Passenger Cars, Light-Duty Trucks,
 19 and Medium-Duty Vehicles, - incorporated by reference in section
 20 1960.1(k).

21 (B) 1996-1998 Model-Year ZEV Multiplier Based on
 22 Specific Energy of Battery. 1996-1998 model-year ZEVs shall
 23 qualify for a ZEV multiplier based on specific energy of the
 24 battery as follows:

ZEV Multiplier	Specific Energy of Battery (w-hr/kg)
2	any
3	40

1 (C) *Election of Multiplier.* A 1996-1998 model-year ZEV may
2 qualify for a ZEV multiplier according to section 1962(d)(1)(A) or section
3 1962(d)(1)(B), but not both.

4 (2) *1999-2000 Model-Year ZEV Multiplier Calculation for Extended*
5 *Electric Range Vehicles.* Each ZEV that is produced and delivered for sale in
6 California in the 1999-2000 model years and that has an extended electric
7 range shall qualify for a ZEV multiplier as follows:

<i>All-electric range</i>	<i>MY 1999-2000</i>
100-175	6-10

11 ZEV multipliers under the above schedule will be determined by linear
12 interpolation between the values shown in the above schedule. Range shall be
13 determined in accordance with Section E.3.(2)(a) of the California Exhaust
14 Emission Standards and Test Procedures for 2003 and Subsequent Model Zero-
15 Emission Vehicles, and 2001 and Subsequent Model Hybrid Electric Vehicles, in
16 the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,
17 incorporated by reference in section 1962(h). ZEVs that have a refueling time
18 of less than 10 minutes and a range of 100 miles or more shall be counted as
19 having unlimited all-electric range, and shall consequently earn the maximum
20 allowable ZEV multiplier for a specific model year. ZEVs that have a range of
21 80 to 99 miles shall qualify for ZEV multipliers in the 1999-2000 model years
22 in accordance with the following equation:

23 ZEV multiplier = (6) x (AER equivalent to a 10 minute recharge/100) x
24 0.5.

25 As an option to the above mechanism, the manufacturer of a 1999 model-year ZEV
26 may elect to have its multiplier based on the regulatory requirements
27 pertaining to multipliers based on range or specific energy in section
28 1960.1(g)(2) and (h)(2). title 13, California Code of Regulations that were
29 applicable to 1999 model-year ZEVs immediately before this section 1962 became
30 operative on November 27, 1999 as a result of the LEV II rulemaking.

31 (3) *ZEV Multipliers for 2001-2002 Model Years*

32 (A) *ZEV Phase-In Multiplier.* Each 2001 and 2002 model-year ZEV
33 that is placed in service in California by September 30, 2003 qualifies for a
34 ZEV phase-in multiplier of 4.0. A 2001 or 2002 model-year ZEV that is placed
35 in service in California after September 30, 2003 earns credits in accordance
36 with section 1962(d)(5) instead of section 1962(d)(3).

1 (B) ZEV Extended Electric Range Multiplier.

2 1. Basic Multiplier Schedule. Each 2001 and 2002 model-year
3 ZEV that is placed in service in California and that has an extended urban
4 electric range qualifies for a ZEV extended electric range multiplier as
5 follows:

6

<i>Urban All-Electric Range</i>	<i>Multiplier</i>
< 50 miles	1
> 50 miles to < 275 miles	(Urban AER-25)/25
> 275 miles	10

7
8
9

10 A NEV is not eligible to earn a ZEV extended electric range
11 multiplier. In determining ZEV range multipliers, specialty ZEVs
12 may, upon Executive Officer approval, be tested at the parameters
13 used to determine the ZEV multipliers for the existing ZEV.
14

15 2. Fast refueling.

16 a. Full Fueling in 10 Minutes or Less. A 2001-2002
17 model-year ZEV with the demonstrated capability to accept fuel or
18 electric charge until achieving at least 95% SOC or rated fuel
19 capacity in 10 minutes or less when starting from all
20 operationally allowable SOC or fuel states is counted as having
21 unlimited zero emission range and qualifies for the maximum
22 allowable ZEV extended electric range multiplier.

23 b. At Least 60-Mile Range in Less Than 10 Minutes. A
24 2001-2002 model year ZEV with the demonstrated capacity to accept
25 fuel or electric charge equivalent to at least 60 miles of UDSS
26 range when starting from 20% SOC in less than 10 minutes is
27 counted as having 60 additional miles (up to a 275 mile maximum)
28 of UDSS range in the range multiplier determination in section
29 1962(d)(3)(C)1.

1 (C) *Combined ZEV Multiplier.* During the 2001-2002
 2 model years, the combined ZEV multiplier for each ZEV in a
 3 specific model year is the product of:

4 1. The ZEV phase-in multiplier if any as set forth in
 5 section 1962(d)(3)(A), times

6 2. The extended electric range multiplier if any as
 7 set forth in section 1962(d)(3)(B).

8 (4) *Effect of ZEV Multipliers in the 1996-2002 Model Years.*
 9 In calculating the number of ZEVs produced and delivered for sale
 10 in California by a manufacturer in the 1996-2002 model years and
 11 the ZEV credits from such vehicles, the number of ZEVs qualifying
 12 for a particular ZEV multiplier shall be multiplied by the
 13 combined ZEV multiplier.

14 (5) *ZEV Credits for 2003 and Subsequent Model Years.*

15 (A) *ZEV Tiers for Credit Calculations.* Starting in
 16 the 2003 model year, ZEV credits from a particular ZEV are based
 17 on the assignment of a given ZEV into one of the following five
 18 ZEV tiers:

<i>ZEV Tier</i>	<i>Common Description</i>	<i>UDDS ZEV Range</i>	<i>Fast Refueling Capability</i>
NEV	NEV	No minimum	N/A
Type 0	Utility EV	<50 miles	N/A
Type I	City EV	>= 50, <100 miles	N/A
Type II	Full Function EV	>= 100 miles	N/A

1	Type III	Fuel Cell EV	>= 100 miles	Must be capable of replacing 95% maximum rated energy capacity in <= 10 minutes
---	----------	-----------------	--------------	--

2 A specialty ZEV that has the same zero emission energy storage
3 device and chassis as an existing ZEV from which it was modified
4 may, upon Executive Officer approval, be categorized on the basis
5 of that existing ZEV. A specialty vehicle that is optimized for
6 a particular duty cycle that conflicts with optimization for
7 maximum vehicle range may be promoted to the next higher ZEV tier
8 upon a determination by the Executive Officer that the specialty
9 vehicle has ZEV componentry equivalent to that utilized by ZEVs
10 in the next tier and would meet the requirements for the next
11 tier if optimized for maximum range.

12 (B) *ZEV Credits for 2003 and Subsequent Model-Year*
13 *ZEVs.* A 2003 and subsequent model-year ZEV, other than a NEV,
14 earns 1 ZEV credit when it is produced and delivered for sale in
15 California. A 2003 and subsequent model-year ZEV earns
16 additional credits based on the earliest model year in which the
17 ZEV is placed in service (not earlier than the ZEV's model year).
18 The following table identifies the credits that a ZEV in each of
19 the five ZEV tiers will earn, including the credit not contingent
20 on placement in service, if it is placed in service in the
21 specified model year or by June 30 after the end of the specified
22 model year.

23	Tier	Model Year in Which ZEV is Placed in Service									
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012+
24	NEV	1.25	0.625	0.625	0.15	0.15	0.15	0.15	0.15	0.15	0.15
25	Type 0	1.5	1.5	1.5	1.5	1.5	1.5	1	1	1	1
26	(Utility										
27)										

Type 1 (City)	8	8	8	7	7	7	2	2	2	2
Type II	12	12	12	10	10	10	3	3	3	3
Type III	40	40	40	40	40	40	4	4	4	3

(C) *Multiplier for Certain Type I and Type II ZEVs.* A 2004 through 2011 model-year Type I and Type II ZEV shall qualify for a multiplier of 1.25 if it is either sold to a motorist or is leased for three or more years to a motorist who is given the option to purchase or re-lease the vehicle for two years or more at the end of the first lease term.

(D) *Counting a Type III ZEV Placed in a Section 177 State.* Through the 2011 model year, a Type III ZEV that is certified to the California ZEV standards and is placed in service in a state that is administering the California ZEV requirements pursuant to section 177 of the federal Clean Air Act (42 U.S.C. § 7507) applicable for the ZEV's model year may be counted towards compliance with the California percentage ZEV requirements in section 1962(b), including the requirements in section 1962(b)(2)(B), as if it were delivered for sale and placed in service in California. Similarly, a 2011 and earlier model-year Type III ZEV that is certified to the California ZEV standards and is placed in service in California may be counted towards the percentage ZEV requirements of any state that is administering the California ZEV requirements pursuant to section 177 of the federal Clean Air Act, including requirements based on section 1962(b)(2)(B).

(e) [Reserved]

(f) *Extended Service Multiplier for 1997-2003 Model-Year ZEVs and PZEVs With 10 Mile Zero Emission Range.* Except in the case of a NEV, an additional ZEV or PZEV multiplier will be earned by the manufacturer of a 1997 through 2003 model-year ZEV, or PZEV with 10 mile zero emission range, for each full year it is registered for operation on public roads in California beyond

1 its first three years of service, through the 2011 calendar year.
2 For additional years of service starting earlier than April 24,
3 2003, the manufacturer will receive 0.1 times the ZEV credit that
4 would be earned by the vehicle if it were leased or sold new in
5 that year, including multipliers, on a year-by-year basis
6 beginning in the fourth year after the vehicle is initially
7 placed in service. For additional years of service starting
8 April 24, 2003 or later, the manufacturer will receive 0.2 times
9 the ZEV credit that would be earned by the vehicle if it were
10 leased or sold new in that year, including multipliers, on a
11 year-by-year basis beginning in the fourth year after the vehicle
12 is initially placed in service. The extended service multiplier
13 is reported and earned in the year following each continuous year
14 of service.

15 (g) *Generation and Use of ZEV Credits; Calculation of Penalties*

16 (1) *Introduction.* A manufacturer that produces and
17 delivers for sale in California ZEVs or PZEVs in a given model
18 year exceeding the manufacturer's ZEV requirement set forth in
19 section 1962(b) shall earn ZEV credits in accordance with this
20 section 1962(g).

21 (2) *ZEV Credit Calculations.*

22 (A) *Credits from ZEVs.* The amount of g/mi ZEV credits
23 earned by a manufacturer in a given model year from ZEVs shall be
24 expressed in units of g/mi NMOG, and shall be equal to the number
25 of credits from ZEVs produced and delivered for sale in
26 California that the manufacturer applies towards meeting the ZEV
27 requirements for the model year subtracted from the number of
28 ZEVs produced and delivered for sale in California by the
29 manufacturer in the model year and then multiplied by the NMOG
30 fleet average requirement for PCs and LDT1s for that model year.

31 (B) *Credits from PZEVs.* The amount of g/mi ZEV
32 credits from PZEVs earned by a manufacturer in a given model year

1 shall be expressed in units of g/mi NMOG, and shall be equal to
2 the total number of PZEVs produced and delivered for sale in
3 California that the manufacturer applies towards meeting its ZEV
4 requirement for the model year subtracted from the total number
5 of PZEV allowances from PZEVs produced and delivered for sale in
6 California by the manufacturer in the model year and then
7 multiplied by the NMOG fleet average requirement for PCs and
8 LDTs for that model year.

9 (C) *Separate Credit Accounts.* The number of credits
10 from a manufacturer's [i] ZEVs, [ii] advanced technology PZEVs,
11 and [iii] all other PZEVs shall each be maintained separately.

12 (3) *ZEV Credits for MDVs and LDTs Other Than LDTs.* ZEVs
13 and PZEVs classified as MDVs or as LDTs other than LDTs may be
14 counted toward the ZEV requirement for PCs and LDTs, and
15 included in the calculation of ZEV credits as specified in this
16 section 1962(g) if the manufacturer so designates.

17 (4) *ZEV Credits for Advanced Technology Demonstration*
18 *Programs.* A vehicle, other than a NEV, that is placed in a
19 California advanced technology demonstration program may earn ZEV
20 credits even if it is not delivered for sale.- To earn such
21 credits, the manufacturer must demonstrate to the reasonable
22 satisfaction of the Executive Officer that the vehicles will be
23 regularly used in applications appropriate to evaluate issues
24 related to safety, infrastructure, fuel specifications or public
25 education, and that for more than 50 percent of the first year of
26 placement the vehicle will be situated in California. Such a
27 vehicle is eligible to receive the same allowances and credits
28 that it would have earned if placed in service. To determine
29 vehicle credit, the model-year designation for a demonstration
30 vehicle shall be consistent with the model-year designation for
31 conventional vehicles placed in the same timeframe.

32 (5) *ZEV Credits for Transportation Systems.*

33 (A) *General.* In model years 2001 through 2011, a ZEV,
34 advanced technology PZEV or PZEV placed as part of a

1 transportation system may earn additional ZEV credits, which may
 2 used in the same manner as other credits earned by vehicles of
 3 that category, except as provided in section (g)(5)(C) below. A
 4 NEV is not eligible to earn credit for transportation systems.
 5 To earn such credits, the manufacturer must demonstrate to the
 6 reasonable satisfaction of the Executive Officer that the vehicle
 7 will be used as a part of a project that uses an innovative
 8 transportation system as described in section (g)(5)(B) below.

9 (B) *Credits Earned.* In order to earn additional
 10 credit under this section (g)(5), a project must at a minimum
 11 demonstrate [i] shared use of ZEVs, AT PZEVs or PZEVs, and [ii]
 12 the application of intelligent- new technologies such as
 13 reservation management, card systems, depot management, location
 14 management, charge billing and real-time wireless information
 15 systems. If, in addition to factors [i] and [ii] above, a
 16 project also features linkage to transit, the project may receive
 17 further additional credit. For ZEVs only, not including NEVs, a
 18 project that features linkage to transit, such as dedicated
 19 parking and charging facilities at transit stations, but does not
 20 demonstrate shared use or the application of intelligent new
 21 technologies, may also receive additional credit for linkage to
 22 transit. The maximum credit awarded per vehicle shall be
 23 determined by the Executive Officer, based upon an application
 24 submitted by the manufacturer and, if appropriate, the project
 25 manager. The maximum credit awarded shall not exceed the
 26 following:

<i>Type of Vehicle</i>	<i>Shared Use, Intelligence</i>	<i>Linkage to Transit</i>
PZEV	2	1
Advanced Technology PZEV	4	2
ZEV	6	3

32 (C) *Cap on Use of Credits.*

1 1. *ZEVs*. Credits earned or allocated by ZEVs pursuant to
2 this section (g)(5), not including all credits earned by the
3 vehicle itself, may be used to satisfy up to one-tenth of a
4 manufacturer's ZEV obligation in any given model year.

5 2. *AT PZEVs*. Credits earned or allocated by AT PZEVs
6 pursuant to this section (g)(5), not including all credits
7 earned by the vehicle itself, may be used to satisfy up to
8 one-twentieth of a manufacturer's ZEV obligation in any
9 given model year, but may only be used in the same manner as
10 other credits earned by vehicles of that category.

11 3. *PZEVs*. Credits earned or allocated by PZEVs
12 pursuant to this section (g)(5), not including all credits
13 earned by the vehicle itself, may be used to satisfy up to
14 one-fiftieth of the manufacturer's ZEV obligation in any
15 given model year, but may only be used in the same manner as
16 other credits earned by vehicles of that category.

17 (D) *Allocation of Credits*. Credits shall be assigned
18 by the Executive Officer to the project manager or, in the
19 absence of a separate project manager, to the vehicle
20 manufacturers upon demonstration that a vehicle has been
21 placed in a project. Credits shall be allocated to vehicle
22 manufacturers by the Executive Officer in accordance with a
23 recommendation submitted in writing by the project manager
24 and signed by all manufacturers participating in the
25 project, and need not be allocated in direct proportion to
26 the number of vehicles placed.

27 (6) *Submittal of ZEV Credits*. A manufacturer may meet the
28 ZEV requirements in any given model year by submitting to the
29 Executive Officer a commensurate amount of g/mi ZEV credits,
30 consistent with section 1962(b). These credits may be earned
31 previously by the manufacturer or acquired from another party,
32 except that beginning with the 2006 model year credits earned

1 from NEVs offered for sale or placed in service in model years
 2 2001 through 2005 cannot be used to satisfy more than the
 3 following portion of a manufacturer's percentage ZEV obligation
 4 that may only be satisfied with credits from ZEVs and, starting
 5 with the 2009 model year, the manufacturer's percentage ZEV
 6 obligation that may be satisfied by credits from AT PZEVs but not
 7 PZEVs:

<i>ZEV Category</i>		<i>AT PZEV Category</i>	
<i>2006</i>	<i>2007 and beyond</i>	<i>2009</i>	<i>2010 and beyond</i>
75%	50%	75%	50%

11 This limitation applies to credits earned in model years 2001
 12 through 2005 by the same manufacturer or earned in model years
 13 2001 through 2005 by another manufacturer and acquired. The
 14 amount of g/mi ZEV credits required to be submitted shall be
 15 calculated according to the criteria set forth in this section
 16 1962(g).

17 (7) *Requirement to Make Up a ZEV Deficit.*

18 (A) *General.* A manufacturer that produces and
 19 delivers for sale in California fewer ZEVs than required in a
 20 given model year shall make up the deficit by the end of the next
 21 model year by submitting to the Executive Officer a commensurate
 22 amount of g/mi ZEV credits, except that credits generated from
 23 PZEVs may be used to offset deficits for two model years. The
 24 amount of g/mi ZEV credits required to be submitted shall be
 25 calculated by [i] adding the number of ZEVs produced and
 26 delivered for sale in California by the manufacturer for the
 27 model year to the number of ZEV allowances from partial ZEV
 28 allowance vehicles produced and delivered for sale in California
 29 by the manufacturer for the model year (for a large volume
 30 manufacturer, not to exceed that permitted under section
 31 1962(b)(2)), [ii] subtracting that total from the number of ZEVs

1 required to be produced and delivered for sale in California by
2 the manufacturer for the model year, and [iii] multiplying the
3 resulting value by the fleet average requirements for PCs and
4 LDTs for the model year in which the deficit is incurred.

5 (8) *Penalty for Failure to Meet ZEV Requirements.* Any
6 manufacturer that fails to produce and deliver for sale in
7 California the required number of ZEVs or submit an appropriate
8 amount of g/mi ZEV credits and does not make up ZEV deficits
9 within the specified time period shall be subject to the Health
10 and Safety Code section 43211 civil penalty applicable to a
11 manufacturer that sells a new motor vehicle that does not meet
12 the applicable emission standards adopted by the state board.
13 The cause of action shall be deemed to accrue when the ZEV
14 deficits are not balanced by the end of the specified time
15 period. For the purposes of Health and Safety Code section
16 43211, the number of vehicles not meeting the state board's
17 standards shall be calculated according to the following
18 equation, provided that the percentage of a large volume
19 manufacturer's ZEV requirement for a given model year that may be
20 satisfied with partial ZEV allowance vehicles or ZEV credits from
21 such vehicles may not exceed the percentages permitted under
22 section 1962(b)(2)(A):

23 (No. of ZEVs required to be produced and delivered for sale
24 in California for the model year) - (No. of ZEVs produced
25 and delivered for sale in California for the model year) -
26 (No. of ZEV allowances from partial ZEV allowance vehicles
27 produced and delivered for sale in California for the model
28 year) - [(Amount of ZEV credits submitted for the model
29 year) / (the fleet average requirement for PCs and LDTs for
30 the model-year)].

31 (h) *Test Procedures.* The certification requirements and
32 test procedures for determining compliance with this section 1962
33 are set forth in California Exhaust Emission Standards and Test
34 Procedures for 2005 and Subsequent Model Zero-Emission Vehicles,
35 and 2001 and Subsequent Model Hybrid Electric Vehicles, in the
36 Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,-

1 adopted by the state board on August 5, 1999, and last amended
2 December 19, 2003, which is incorporated herein by reference.

3 (i) *ZEV-Specific Definitions.* The following definitions
4 apply to this section 1962.

5 (1) Advanced technology PZEV- or AT PZEV- means any PZEV
6 with an allowance greater than 0.2 before application of the PZEV
7 early introduction phase-in multiplier.

8 (2) Battery electric vehicle- means any vehicle that
9 operates solely by use of a battery or battery pack, or that is
10 powered primarily through the use of an electric battery or
11 battery pack but uses a flywheel or capacitor that stores energy
12 produced by the electric motor or through regenerative braking to
13 assist in vehicle operation.

14 (2.5) Electric drive system- means an electric motor
15 and associated power electronics which provide acceleration
16 torque to the drive wheels sometime during normal vehicle
17 operation. This does not include components that could act as a
18 motor, but are configured to act only as a generator or engine
19 starter in a particular vehicle application.

20 (3) Neighborhood electric vehicle- means a motor vehicle
21 that meets the definition of Low-Speed Vehicle either in section
22 385.5 of the Vehicle Code or in 49 CFR 571.500 (as it existed on
23 July 1, 2000), and is certified to zero-emission vehicle
24 standards.

25 (4) Placed in service- means having been sold or leased to
26 an end-user and not to a dealer or other distribution chain
27 entity, and having been individually registered for on-road use
28 by the California Department of Motor Vehicles.

1 ~~Regenerative~~ braking- means the partial recovery of the energy
2 normally dissipated into friction braking that is returned as
3 electrical current to an energy storage device.

4 (5) Specialty ZEV- means a ZEV that is designed for a
5 commercial or governmental fleet application, and either [i] has
6 the same zero emissions energy storage device and chassis as an
7 existing ZEV from which it is modified, or [ii] in the case of a
8 vehicle that is not based on an existing ZEV platform, is
9 optimized for a particular duty cycle, such as urban delivery
10 service, that conflicts with optimization for maximum vehicle
11 range.

12 (6) Type 0, I, II, and III ZEV- all have the meanings set
13 forth in section 1962(d)(5)(A).

14 (j) *Abbreviations.* The following abbreviations are used in
15 this section 1962:

16 AER- means all-electric range.

17 BEV- means battery electric vehicle.

18 HEV- means hybrid-electric vehicle.

19 LDT- means light-duty truck.

20 LDT1- means a light-truck with a loaded vehicle weight of
21 0-3750 pounds.

22 LDT2- means a LEV II- light-duty truck with a loaded
23 vehicle weight of 3751 pounds to a gross vehicle weight of
24 8500 pounds, or a LEV I- light-duty truck with a loaded
25 vehicle weight of 3751-5750 pounds.

26 MDV- means medium-duty vehicle.

27 Non-Methane Organic Gases- or NMOG- means the total mass
28 of oxygenated and non-oxygenated hydrocarbon emissions.

29 MY- means model year.

30 NEV- means neighborhood electric vehicle.

31 NOx- means oxides of nitrogen.

32 PC- means passenger car.

1 PZEV- means any vehicle that is delivered for sale in
2 California and that qualifies for a partial ZEV allowance of
3 at least 0.2.

4 SOC- means state of charge.

5 SULEV- means super-ultra-low-emission-vehicle.

6 UDDS- means urban dynamometer driving cycle.

7 ULEV- means ultra-low emission vehicle.

8 VMT- means vehicle miles traveled.

9 ZEV- means zero-emission vehicle.

10 (k) *Severability*. Each provision of this section is severable,
11 and in the event that any provision of this section is held to be
12 invalid, the remainder of this article remains in full force and
13 effect.

14 Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101,
15 43104 and 43105, Health and Safety Code. Reference: Sections 39002,
16 39003, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5,
17 43102, 43104, 43105, 43106, 43204, and 43205.5, Health and Safety Code.

1 **1962.1. Electric Vehicle Charging Requirements.**

2 (a) *Applicability.* This section applies to (1) all battery
3 electric vehicles that qualify for 1.0 or greater ZEV credit
4 under section 1962, and (2) all hybrid electric vehicles that are
5 capable of being recharged by a battery charger that transfers
6 energy from the electricity grid to the vehicle for purposes of
7 recharging the vehicle traction battery, other than battery
8 electric vehicles and hybrid electric vehicles that are only
9 capable of Level 1 charging.

10 (b) *Definitions.*

11 (1) The definitions in section 1962 apply to this section.

12 (2) Level 1 charging- means a charging method that allows
13 an electric vehicle or hybrid electric vehicle to be charged by
14 having its charger connected to the most common grounded
15 receptacle (NEMA 5-15R). A vehicle that is only capable of Level
16 1 charging is one that is charged by an on-board or off-board
17 charger capable of accepting energy from the existing AC supply
18 network. The maximum power is 12 amps, with a branch circuit
19 rating of 15 amps, and continuous power of 1.44 kilowatts.

20 (c) *Requirements.* Beginning with the 2006 model year, all
21 vehicles identified in subsection (a) must be equipped with a
22 conductive charger inlet port which meets all the specifications
23 contained in Society of Automotive Engineers (SAE) Surface
24 Vehicle Recommended Practice SAE J1772 REV NOV 2001, SAE Electric
25 Vehicle Conductive Charge Coupler, which is incorporated herein
26 by reference. All such vehicles must be equipped with an on-
27 board charger with a minimum output of 3.3 kilovolt amps.

28 Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101,
29 43104 and 43105, Health and Safety Code. Reference: Sections 39002,
30 39003, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5,
31 43102, 43104, 43105, 43106, 43107, 43204, and 43205.5, Health and Safety
32 Code.

1 **1965. Emission Control and Smog Index Labels - 1979 and**
2 **Subsequent Model-Year Motor Vehicles.**

3 In addition to all other requirements, emission control
4 labels are required by the California certification procedures
5 contained in the California Motor Vehicle Emission Control and
6 Smog Index Label Specifications for 1978 through 2003 Model Year
7 Motorcycles, Light-, Medium- And Heavy-Duty Engines And
8 Vehicles,- adopted March 1, 1978, as last amended September 5,
9 2003, which is incorporated herein by reference, the California
10 Exhaust Emission Standards and Test Procedures for 2001 and
11 Subsequent Model Passenger Cars, Light-Duty trucks and Medium-
12 Duty Vehicles,- incorporated by reference in ú1961(d), the
13 California Exhaust Emission Standards and Test Procedures for
14 2004 and Subsequent Model Heavy-Duty Diesel-Engines and
15 Vehicles,- incorporated by reference in ú1956.8(b), the
16 California Interim Certification Procedures for 2004 and
17 Subsequent Model Hybrid-Electric Vehicle Classes,- incorporated
18 by reference in ú1956.8(b) and (d), and the California Exhaust
19 Emission Standards and Test Procedures for 2004 and Subsequent
20 Model Heavy-Duty Otto-Cycle Engines,- incorporated by reference
21 in ú1956.8(d). Smog index labels for passenger cars and light-
22 duty trucks shall conform to the California Smog Index Label
23 Specifications,- adopted September 5, 2003, which is incorporated
24 herein by reference. Motorcycles shall meet the requirements of
25 Title 40 Code of Federal Regulations section 86.413-78, as last
26 amended October 28, 1977, which is incorporated herein by
27 reference.

28 Note: Authority cited: Sections 39600, 39601, and 43200, Health and
29 Safety Code. Reference: Sections 39002, 39003, 43000, 43013, 43100,
30 43101, 43102, 43103, 43104, 43107, and 43200, Health and Safety Code.

31 * * * *

1 **1976. Standards and Test Procedures for Motor Vehicle Fuel**
 2 **Evaporative Emissions.**

3 (a) *[Fuel evaporative emissions standards for 1970 through*
 4 *1977 model passenger cars and light-duty trucks; not set forth]*

5 (b)(1) Evaporative emissions for 1978 and subsequent model
 6 gasoline-fueled, 1983 and subsequent model liquefied petroleum
 7 gas-fueled, and 1993 and subsequent model alcohol-fueled motor
 8 vehicles and hybrid electric vehicles subject to exhaust emission
 9 standards under this article, except petroleum-fueled diesel
 10 vehicles, compressed natural gas-fueled vehicles, hybrid electric
 11 vehicles that have sealed fuel systems which can be demonstrated
 12 to have no evaporative emissions, and motorcycles, shall not
 13 exceed the following standards:

14 (A) For vehicles identified below, tested in
 15 accordance with the test procedure based on the Sealed Housing
 16 for Evaporative Determination as set forth in Title 40, Code of
 17 Federal Regulations, sections 86.130-78 through 86.143-90 as they
 18 existed July 1, 1989, the evaporative emission standards are:
 19
 20
 21

<i>Vehicle Type</i>	<i>Model Year</i>	<i>Hydrocarbons Diurnal + Hot Soak (grams/test) 50K miles</i>
Passenger cars	1978 and 1979	6.0
Light-duty trucks		6.0
Medium-duty vehicles		6.0
Heavy-duty vehicles		6.0
Passenger cars	1980-1994	2.0
Light-duty trucks		2.0
Medium-duty vehicles		2.0
Heavy-duty vehicles		2.0

1 ¹ Organic Material Hydrocarbon Equivalent, for alcohol-fueled vehicles.

2 ² Other than hybrid electric vehicles.

3

4

5

(B) For the vehicles identified below, tested in accordance with the test procedure which includes the running loss test, the hot soak test, and the 72 hour diurnal test, the evaporative emission standards are:

Vehicle Type	Model Year	Hydrocarbons ¹	
		Three-Day Diurnal +Hot Soak (grams/test) Useful Life	Running Loss (grams/mile) Useful Life ⁽²⁾
Passenger cars	1995 through 2005	2.0	0.05
Light-duty trucks		2.0	0.05
Medium-duty vehicles (6,001-8,500 lbs. GVWR) with fuel tanks < 30 gallons with fuel tanks 30 gallons		2.0	0.05
		2.5	0.05
		3.0	0.05
Heavy-duty vehicles (over 14,000 lbs. GVWR)	2.0	0.05	
Hybrid electric passenger cars	1993 through 2005	2.0	0.05
Hybrid electric light-duty trucks		2.0	0.05
Hybrid electric medium-duty vehicles		2.0	0.05

¹ Organic Material Hydrocarbon Equivalent for alcohol-fueled vehicles.

² For purposes of this paragraph, useful life shall have the same meaning as provided in section 2112, title 13, California Code of Regulations. Approval of vehicles which are not exhaust emission tested using a chassis

1 dynamometer pursuant to section 1960.1 or 1961, title 13, California Code of
2 Regulations shall be based on an engineering evaluation of the system and data
3 submitted by the applicant.

4 ³ The running loss and useful life three-day diurnal plus hot soak
5 evaporative emission standards (hereinafter running loss and useful life
6 standards) shall be phased-in beginning with the 1995 model year. Each
7 manufacturer, except ultra-small volume and small volume manufacturers, shall
8 certify the specified percent (a) of passenger cars and (b) of light-duty
9 trucks, medium-duty vehicles and heavy-duty vehicles to the running loss and
10 useful life standards according to the following schedule:

	<i>Model</i>	<i>Minimum Percentage of Vehicles</i>
	<u>Year</u>	<u>Certified to Running Loss and</u>
		<u>Useful Life Standards*</u>
14	_____	
15	1995	10 percent
16	1996	30 percent
17	1997	50 percent

18 * The minimum percentage of motor vehicles of each vehicle
19 type required to be certified to the running loss and useful life
20 standards shall be based on the manufacturer s projected
21 California model-year sales (a) of passenger cars and (b) of
22 light-duty trucks, medium-duty vehicles and heavy-duty vehicles.
23 Optionally, the percentage of motor vehicles can also be based on
24 the manufacturer s projected California model-year sales (a) of
25 passenger cars and light-duty trucks and (b) of medium-duty
26 vehicles and heavy-duty vehicles.

27 Beginning with the 1998 model year, all motor vehicles subject to the
28 running loss and useful life standards, except those produced by ultra-
29 small volume manufacturers, shall be certified to the specified standards.
30 In the 1999 through the 2005 model years, all motor vehicles subject to the
31 running loss and useful life standards, including those produced by ultra-
32 small volume manufacturers, shall be certified to the specified standards.

33 All 1995 through 1998 model-year motor vehicles which are not subject to
34 running loss and useful life standards pursuant to the phase-in schedule
35 shall comply with the 50,000-mile standards in effect for 1980 through 1994
36 model-year vehicles.

37
38 ⁴ For the 1995 model year only, the evaporative emission standards for
39 complete vehicles in this weight range shall be 2.0 grams/test and compliance
40 with the evaporative emission standards shall be based on the SHED conducted

1 in accordance with the procedures set forth in title 40, Code of Federal
 2 Regulations, sections 86.130-78 through 86.143-90 as they existed July 1,
 3 1989. For the 1995 through 2005 model years, the evaporative emission
 4 standards for incomplete vehicles in this weight range shall be 2.0 grams/test
 5 and compliance with the evaporative emission standards shall be based on the
 6 test procedures specified in paragraph 4.g. of the California Evaporative
 7 Emission Standards and Test Procedures for 1978 and Subsequent Model Motor
 8 Vehicles.

9 ⁵ The running loss and useful life standards for all hybrid electric vehicles
 10 shall be effective beginning in the 1993 model year.

11 _____
 12 _____

13 (C) For vehicles identified below, tested in
 14 accordance with the test procedure which includes the hot soak
 15 test and the 48 hour diurnal test, the evaporative emission
 16 standards are:

<i>Vehicle Type</i>	<i>Model Year</i>	<i>Hydrocarbons Two-Day Diurnal + Hot Soak (grams/test) Useful Life</i>
Passenger cars	1996 through 2005	2.5
Light-duty trucks		2.5
Medium-duty vehicles (6,001-8,500 lbs. GVWR) with fuel tanks < 30 gallons		2.5
with fuel tanks 30 gallons		3.0
(8,501-14,000 lbs. GVWR)		3.5
Heavy-duty vehicles (over 14,000 lbs. GVWR)		4.5
Hybrid electric passenger cars	1996 through 2005	2.5
Hybrid electric light- duty trucks		2.5
Hybrid electric medium- duty vehicles		2.5

1 ¹ Organic Material Hydrocarbon Equivalent for alcohol-fueled vehicles.

2 ² For purposes of this paragraph, useful life shall have the same meaning
3 as provided in section 2112, title 13, California Code of Regulations.
4 Approval of vehicles which are not exhaust emission tested using a chassis
5 dynamometer pursuant to section 1960.1 or 1961, title 13, California Code of
6 Regulations shall be based on an engineering evaluation of the system and data
7 submitted by the applicant.

8 ³ The two-day diurnal plus hot soak evaporative emission standards
9 (hereinafter supplemental standards) shall be phased-in beginning with the
10 1996 model year. Those vehicles certified under the running loss and useful
11 life standards for the 1996 through 2005 model years must also be certified
12 under the supplemental standards.

13
14
15 (D) Zero-emission vehicles shall produce zero fuel
16 evaporative emissions under any and all possible operational
17 modes and conditions.

18 (E) The optional zero-fuel evaporative emission
19 standards for the three-day and two-day diurnal-plus-hot-soak
20 tests are 0.35 grams per test for passenger cars, 0.50 grams per
21 test for light-duty trucks 6,000 lbs. GVWR and under, and 0.75
22 grams per test for light-duty trucks from 6,001 to 8,500 lbs.
23 GVWR, to account for vehicle non-fuel evaporative emissions
24 (resulting from paints, upholstery, tires, and other vehicle
25 sources). Vehicles demonstrating compliance with these
26 evaporative emission standards shall also have zero (0.0) grams
27 of fuel evaporative emissions per test for the three-day and two-
28 day diurnal-plus-hot-soak tests. The useful life shall be 15
29 years or 150,000 miles, whichever occurs first. In lieu of
30 demonstrating compliance with the zero (0.0) grams of fuel
31 evaporative emissions per test over the three-day and two-day
32 diurnal-plus-hot-soak tests, the manufacturer may submit for
33 advance Executive Officer approval a test plan to demonstrate
34 that the vehicle has zero (0.0) grams of fuel evaporative
35 emissions throughout its useful life.

36 Additionally, in the case of a SULEV vehicle for which a
37 manufacturer is seeking a partial ZEV credit, the manufacturer

1 may prior to certification elect to have measured fuel
 2 evaporative emissions reduced by a specified value in all
 3 certification and in-use testing of the vehicle as long as
 4 measured mass exhaust emissions of NMOG for the vehicle are
 5 increased in all certification and in-use testing. The measured
 6 fuel evaporative emissions shall be reduced in increments of
 7 0.1 gram per test, and the measured mass exhaust emissions of
 8 NMOG from the vehicle shall be increased by a gram per mile
 9 factor, to be determined by the Executive Officer, for every 0.1
 10 gram per test by which the measured fuel evaporative emissions
 11 are reduced. For the purpose of this calculation, the
 12 evaporative emissions shall be measured, in grams per test, to a
 13 minimum of three significant figures.

14 (F) For the 2004 and subsequent model motor vehicles
 15 identified below, tested in accordance with the test procedures
 16 described in Title 40, Code of Federal Regulations, sections
 17 86.130-78 through 86.143-90 as they existed July 1, 1989 and as
 18 modified by the California Evaporative Emission Standards and
 19 Test Procedures for 2001 and Subsequent Model Motor Vehicles-
 20 incorporated by reference in section 1976(c), the evaporative
 21 emission standards are:

<i>Vehicle Type</i>	<i>Hydrocarbon Standards</i>		
	<i>Running Loss (grams per mile)</i>	<i>Three Day Diurnal + Hot Soak (grams per test)</i>	<i>Two-Day Diurnal + Hot Soak (grams per test)</i>
Passenger cars	0.05	0.50	0.65
Light-duty trucks (under 8,501 lbs. GVWR)			
6,000 lbs. GVWR and under	0.05	0.65	0.85
6,001 - 8,500 lbs. GVWR	0.05	0.90	1.15

1 2 3 4	Medium-duty vehicles (8,501 - 14,000 lbs. GVWR)	0.05	1.00	1.25
5 6 7	Heavy-duty vehicles (over 14,000 lbs. GVWR)	0.05	1.00	1.25

8 ¹ Organic Material Hydrocarbon Equivalent for alcohol-fueled vehicles.

9 ² For all vehicles certified to these standards, the useful life shall be
10 15 years or 150,000 miles, whichever first occurs. Approval of vehicles which
11 are not exhaust emission tested using a chassis dynamometer pursuant to
12 section 1960.1 or 1961, title 13, California Code of Regulations shall be
13 based on an engineering evaluation of the system and data submitted by the
14 applicant.

15 ³ (a) These evaporative emission standards shall be phased-in
16 beginning with the 2004 model year. Each

17 manufacturer, except small volume manufacturers, shall certify at a
18 minimum the specified percentage of its vehicle fleet to the evaporative
19 emission standards in this table or the optional zero-evaporative
20 emission standards in section 1976(b)(1)(E) according to the schedule
21 set forth below. For purposes of this paragraph (a), each
22 manufacturer's vehicle fleet consists of the total projected California
23 sales of the manufacturer's gasoline-fueled, liquefied petroleum-fueled
24 and alcohol-fueled passenger cars, light-duty trucks, medium-duty
25 vehicles, and heavy-duty vehicles.

26 Model Year Minimum Percentage of
Vehicles Certified to the
Standards in
1976(b)(1)(F) and
(b)(1)(E)

27	2004	40
28	2005	80
29	2006 and	100
30	subsequent	

31 A small volume manufacturer shall certify 100 percent of its 2006 and
32 subsequent model vehicle fleet to the evaporative emission standards in
33 the table or the optional zero-evaporative emission standards in section
34 1976(b)(1)(E).

35 All 2004 through 2005 model-year motor vehicles which are not subject to
36 these standards or the standards in section 1976(b)(1)(E) pursuant to

1 the phase-in schedule shall comply with the requirements of sections
2 1976(b)(1)(B) and (C).

3 (b) A manufacturer may use an Alternative or Equivalent Phase-in
4 Schedule to comply with the phase-in requirements. An Alternative
5 Phase-in is one that achieves at least equivalent emission reductions
6 by the end of the last model year of the scheduled phase-in. Model-year
7 emission reductions shall be calculated by multiplying the percent of
8 vehicles (based on the manufacturer's projected California sales volume
9 of the applicable vehicle fleet) meeting the new requirements per model
10 year by the number of model years implemented prior to and including the
11 last model year of the scheduled phase-in. The cumulative total is
12 the summation of the model-year emission reductions (e.g., the three
13 model-year 40/80/100 percent phase-in schedule would be calculated as:
14 $(40\% \times 3 \text{ years}) + (80\% \times 2 \text{ years}) + (100\% \times 1 \text{ year}) = 380$). The required
15 cumulative total for the phase-in of these standards is 380 emission
16 reductions. Any alternative phase-in that results in an equal or larger
17 cumulative total than the required cumulative total by the end of the
18 last model year of the scheduled phase-in shall be considered acceptable
19 by the Executive Officer only if all vehicles subject to the phase-in
20 comply with the respective requirements in the last model year of the
21 required phase-in schedule. A manufacturer shall be allowed to include
22 vehicles introduced before the first model year of the scheduled phase-
23 in (e.g., in the previous example, 10 percent introduced one year before
24 the scheduled phase-in begins would be calculated as: $(10\% \times 4 \text{ years}) = 40$)
25 and added to the cumulative total.

26 (c) These evaporative emission standards do not apply to zero-emission
27 vehicles.

28 ⁴ In-use compliance whole vehicle testing shall not begin until the motor
29 vehicle is at least one year from the production date and has accumulated a
30 minimum of 10,000 miles. For vehicles introduced prior to the 2007 model
31 year, in-use compliance standards of 1.75 times the Three-Day Diurnal + Hot-
32 Soak and Two-Day Diurnal + Hot-Soak gram per test standards shall apply for
33 only the first three model years of an evaporative family certified to a new
34 standard.

35 _____
36 _____

1 (b)(2) *[Evaporative emissions standards for gasoline-fueled*
2 *motorcycles; not set forth]*

3 (c) The test procedures for determining compliance with the
4 standards in subsection (b) above applicable to 1978 through 2000
5 model year vehicles are set forth in California Evaporative
6 Emission Standards and Test Procedures for 1978-2000 Model Motor
7 Vehicles,- adopted by the state board on April 16, 1975, as last
8 amended August 5, 1999, which is incorporated herein by
9 reference. The test procedures for determining compliance with
10 standards applicable to 2001 and subsequent model year vehicles
11 are set forth in the California Evaporative Emission Standards
12 and Test Procedures for 2001 and Subsequent Model Motor
13 Vehicles,- adopted by the state board on August 5, 1999, which
14 is incorporated herein by reference.

15 (d) *[Applies to motorcycles only; not set forth]*

16 (e) *[Applies to motorcycles only; not set forth]*

17 (f)(2) For the purposes of this section, ultra-small
18 volume manufacturer- means any vehicle manufacturer with
19 California sales less than or equal to 300 new vehicles per model
20 year based on the average number of vehicles sold by the
21 manufacturer in the previous three consecutive model years, and
22 small volume manufacturer- means, for 1978 through 2000 model
23 years, any vehicle manufacturer with California sales less than
24 or equal to 3000 new vehicles per model year based on the average
25 number of vehicles sold by the manufacturer in the previous three
26 consecutive model years. For 2001 and subsequent model motor
27 vehicles, small volume manufacturer- has the meaning set forth
28 in section 1900(a).

29 Note: Authority cited: Sections 39600, 39601, 39667, 43013, 43018,
30 43101, 43104 and 43107, Health and Safety Code. Reference: Sections
31 39003, 39500, 39667, 43000, 43013, 43018, 43100, 43101, 43102, 43104 and
32 43107, Health and Safety Code.

1 **1978. Standards and Test Procedures for Vehicle Refueling**
2 **Emissions.**

3 (a)(1) Vehicle refueling emissions for 1998 and
4 subsequent model gasoline-fueled, alcohol-fueled, diesel-fueled,
5 liquefied petroleum gas-fueled, fuel-flexible, and hybrid
6 electric passenger cars, light-duty trucks, and medium-duty
7 vehicles with a gross vehicle weight rating less than 8,501
8 pounds, shall not exceed the following standards. Natural gas-
9 fueled vehicles are exempt from meeting these refueling
10 standards, but the refueling receptacles on natural gas-fueled
11 vehicles must comply with the receptacle provisions of the
12 American National Standards Institute/ American Gas Association
13 Standard for Compressed Natural Gas Vehicle Fueling Connection
14 Devices, ANSI/AGA NGV1 standard-1994, which is incorporated
15 herein by reference. The standards apply equally to
16 certification and in-use vehicles.

17 Hydrocarbons (for gasoline-fueled, diesel-fueled, and hybrid
18 electric vehicles): 0.20 gram per gallon of fuel dispensed.

19 Organic Material Hydrocarbon Equivalent (for alcohol-fueled,
20 fuel-flexible, and hybrid electric vehicles): 0.20 gram per
21 gallon of fuel dispensed.

22 Hydrocarbons (for liquefied petroleum gas-fueled vehicles):
23 0.15 gram per gallon of fuel dispensed.

24 (2) Vehicles powered by diesel fuel are not required to
25 conduct testing to demonstrate compliance with the refueling
26 emission standards set forth above, provided that all of the
27 following provisions are met:

28 (A) The manufacturer can attest to the following
29 evaluation: Due to the low vapor pressure of diesel fuel and the
30 vehicle tank temperatures, hydrocarbon vapor concentrations are
31 low and the vehicle meets the 0.20 grams/gallon refueling
32 emission standard without a control system.-

1 (B) The certification requirement described in
2 paragraph (A) is provided in writing and applies for the full
3 useful life of the vehicle, as defined in section 2112.

4 In addition to the above provisions, the ARB reserves
5 the authority to require testing to enforce compliance and to
6 prevent noncompliance with the refueling emission standard.

7 Vehicles certified to the refueling emission standard
8 under this provision shall not be counted in the phase-in sales
9 percentage compliance determinations.

10 (3) The manufacturer shall adhere to the following phase-in
11 schedule, as determined by projected vehicle sales throughout the
12 United States, with the exception of small volume manufacturers.

<i>ORVR Model Year Phase-In Schedule</i>			
<i>Class of Vehicle</i>	<i>40% Fleet</i>	<i>80% Fleet</i>	<i>100% Fleet</i>
Passenger Cars	1998	1999	2000
Light-Duty Trucks 0-6,000 lbs. GVWR	2001	2002	2003
Light-Duty Trucks / Medium-Duty Vehicles 6,001-8,500 lbs. GVWR	2004	2005	2006

23 (A) Prior to the 2001 model year, small volume
24 manufacturers are defined for purposes of this section as any
25 vehicle manufacturer with California actual sales less than or
26 equal to 3000 new vehicles per model year based on the average
27 number of vehicles sold by the manufacturer in the previous three
28 consecutive years.

29 (B) Small volume manufacturers of passenger cars, as
30 defined in subsection (a)(3)(A), are exempt from the

1 implementation schedule in subsection (a)(3) for model years 1998
2 and 1999. For small volume manufacturers of passenger cars, the
3 standards of subsection (a)(1), and the associated test
4 procedures, shall not apply until model year 2000, when 100
5 percent compliance with the standards of this section is
6 required. Small volume manufacturers of light-duty trucks and
7 medium-duty vehicles are not exempt from the implementation
8 schedule in subsection (a)(3).

9 (b) The test procedures for determining compliance with
10 standards applicable to 1998 through 2000 gasoline, alcohol,
11 diesel, and hybrid electric passenger cars, light-duty trucks,
12 and medium-duty vehicles are set forth in the California
13 Refueling Emission Standards and Test Procedures for 1998-2000
14 Model Motor Vehicles,- as amended August 5, 1999, which is
15 incorporated herein by reference. The test procedures for
16 determining compliance with standards applicable to 2001 and
17 subsequent gasoline, alcohol, diesel, and hybrid electric
18 passenger cars, light-duty trucks, and medium-duty vehicles are
19 set forth in the California Refueling Emission Standards and
20 Test Procedures for 2001 and Subsequent Model Motor Vehicles,-
21 adopted August 5, 1999, and last amended September 5, 2003, which
22 is incorporated herein by reference.

23 Note: Authority cited: Sections 39600, 39667, 43013, 43018, 43101, and
24 43104, Health and Safety Code. Reference: Sections 39003, 39500, 39667,
25 43000, 43013, 43018, 43101, 43102, and 43104, Health and Safety Code.

26 * * * *

1 **2062. Assembly-Line Test Procedures - 1998 and Subsequent Model**
2 **Years.**

3 New 1998 through 2000 model-year passenger cars, light-duty
4 trucks, and medium-duty vehicles, subject to certification and
5 manufactured for sale in California, except for zero-emission
6 vehicles and medium-duty vehicles certified according to the
7 optional standards and test procedures of Section 1956.8, Title
8 13, California Code of Regulations, shall be tested in accordance
9 with the California Assembly-Line Test Procedures for 1998
10 Through 2000 Model-Year Passenger Cars, Light-Duty Trucks and
11 Medium-Duty Vehicles.- adopted June 24, 1996, and last amended
12 August 5, 1999, which is incorporated herein by reference. New
13 2001 and subsequent model-year passenger cars, light-duty trucks,
14 and medium-duty vehicles, subject to certification and
15 manufactured for sale in California, except for zero-emission
16 vehicles and medium-duty vehicles certified according to the
17 optional standards and test procedures of Section 1956.8, Title
18 13, California Code of Regulations, shall be tested in accordance
19 with the California Assembly-Line Test Procedures for 2001 and
20 Subsequent Model-Year Passenger Cars, Light-Duty Trucks and
21 Medium-Duty Vehicles.- adopted August 5, 1999, which is
22 incorporated herein by reference. These test procedures shall
23 also apply to federally certified light-duty motor vehicles,
24 except as provided in Guidelines for Certification of 1983 and
25 Subsequent Model-Year Federally Certified Light-Duty Motor
26 Vehicles for Sale in California,- adopted July 20, 1982, as last
27 amended July 12, 1991, which is incorporated herein by reference.

28 NOTE: Authority cited: Sections 39515, 39600, 39601, 43013, 43018,
29 43101, 43104 and 43210, Health and Safety Code. Reference: Sections
30 39002, 39003, 39500, 43000, 43013, 43018, 43100, 43101, 43101.5, 43102,
31 43104, 43105, 43106, 43204, 43210, 43211, and 43212, Health and Safety
32 Code.

33 * * * *

1 **2101. Compliance Testing and Inspection - New Vehicle Selection**
2 **Evaluation, and Enforcement Action.**

3 (a) The Executive Officer may, with respect to any new
4 vehicle engine family, test group or subgroup being sold, offered
5 for sale, or manufactured for sale in California, order a vehicle
6 manufacturer to make available for compliance testing and/or
7 inspection a reasonable number of vehicles, and may direct that
8 the vehicles be delivered to the state board at the Haagen-Smit
9 Laboratory, 9528 Telstar Avenue, El Monte, California. Vehicles
10 shall be selected at random from sources specified by the
11 Executive Officer according to a method approved by him/her,
12 which insofar as practical shall exclude (1) vehicles
13 manufactured pursuant to the specific order of an ultimate
14 purchaser or (2) vehicles the selection of which, if not
15 excluded, would result in an unreasonable disruption of the
16 manufacturer's distribution system.

17 A subgroup may be selected for compliance testing only if
18 the Executive Officer has reason to believe that the emissions
19 characteristics of that subgroup are substantially in excess of
20 the emissions of the engine family or test group as a whole.

21 (b) If the vehicles are selected for compliance testing,
22 the selection and testing of vehicles and the evaluation of data
23 shall be made in accordance with the California New Vehicle
24 Compliance Test Procedures,- adopted by the state board on June
25 13, 1976, and last amended August 5, 1999. Motorcycles scheduled
26 for compliance testing shall be selected, tested, and evaluated
27 in accordance with the California New Motorcycle Compliance Test
28 Procedures,- adopted by the state board on June 30, 1977, and
29 amended November 24, 1981.

30 (c) If the Executive Officer determines, in accordance with
31 the California New Vehicle Compliance Test Procedures,- or the
32 California New Motorcycle Compliance Test Procedures- that an
33 engine family, test group, or any subgroup within an engine
34 family or test group, exceeds the emission standards for one or
35 more pollutants, the Executive Officer shall notify the

1 manufacturer and may invoke Section 2109. Prior to invoking
2 Section 2109, the Executive Officer shall consider quality audit
3 test results, if any, and any additional test data or other
4 information provided by the manufacturer.

5 (d) Vehicles selected for inspection shall be checked to
6 verify the presence of those emissions-related components
7 specified in the manufacturer's application for certification,
8 and for the accuracy of any adjustments, part numbers and labels
9 specified in that application. If any vehicle selected for
10 inspection fails to conform to any applicable law in Part 5
11 (commencing with Section 43000) of Division 26 of the Health and
12 Safety Code, or any regulation adopted by the state board
13 pursuant thereto, other than an emissions standard applied to new
14 vehicles to determine certification- as specified in Subchapter
15 1, Article 2 of this Chapter and an assembly-line test procedure
16 specified in Subchapter 2, Article 1 of this Chapter, the
17 executive officer shall notify the manufacturer and may invoke
18 Section 2109. Prior to invoking Section 2109, the executive
19 officer shall consider any information provided by the
20 manufacturer."

21 On page 6, line 21, strike "Section 2 of this act
22 constitutes" and insert "Sections 2 and 7 of this act constitute"

23 On page 6, after line 22, insert the following:

24 "NEW SECTION. **Sec. 10.** Pursuant to RCW 1.08.015(2), the
25 code reviser shall reorganize section 7 of this act into sections
26 of appropriate length and may otherwise conform capitalization
27 and subdivision numbering to the conventional standard of the
28 Revised Code of Washington."

29 Renumber the sections consecutively and correct internal
30 references accordingly. Correct the title.

EFFECT: Codifies the low emission and zero emission vehicle regulations of the California Code of Regulations that Washington will adopt when it adopts the California emissions standards.